

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

Draft Staff Report

Proposed Amended Rule 1304 – Exemptions

Proposed Amended Rule 2005 – New Source Review for RECLAIM

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CHAPTER 1: BACKGROUND

INTRODUCTION

BACKGROUND

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INTRODUCTION

New Source Review (NSR) is a regulatory pre-construction permitting program required by the federal and state Clean Air Acts to ensure that emission increases from new and modified sources do not interfere with the progress towards meeting the National Ambient Air Quality Standards (NAAQS) and state ambient air quality standards, while ensuring that future economic growth and facility modernization in the South Coast Air Quality Management District (South Coast AQMD) are not unnecessarily restricted. South Coast AQMD has two NSR programs for nonattainment pollutants: Regulation XIII – New Source Review (Regulation XIII) and Rule 2005 – New Source Review for RECLAIM (Rule 2005). Regulation XIII and Rule 2005 apply to pollutants that have been designated as nonattainment for a national or state ambient air quality standard. Additionally, South Coast AQMD has partial delegation of the federal major NSR program for attainment pollutants through Regulation XVII – Prevention of Significant Deterioration (Regulation XVII), which will not be affected by the proposed amendments.

Proposed amendments for Rule 1304 – Exemptions (Rule 1304) and Rule 2005 are necessary to implement a narrow Best Available Control Technology (BACT) exemption. The exemption will allow for emission increases associated with air pollution control equipment installed or modified for regulatory compliance with a Best Available Retrofit Control Technology (BARCT) rule required to transition the REgional Clean Air Incentives Market (RECLAIM) program for oxides of nitrogen (NO_x), to a command-and-control regulatory structure.

BACKGROUND

The South Coast AQMD Governing Board adopted the RECLAIM program on October 15, 1993 under Regulation XX – REgional Clean Air Incentives Market (RECLAIM) (Regulation XX). RECLAIM is a market-based emissions trading program designed to reduce NO_x and oxides of sulfur (SO_x) emissions through a market-based approach for facilities with NO_x or SO_x emissions greater than or equal to four tons per year. The program replaced a series of existing and future command-and-control rules and was designed to provide facilities with the flexibility to seek the most cost-effective solution to reduce their emissions.

The 2016 Air Quality Management Plan (AQMP) which was adopted on March 3, 2017 and includes control measure CMB-05: Further NO_x Reductions from RECLAIM Assessment. Control measure CMB-05 committed to identify approaches to make the RECLAIM program more effective in ensuring equivalency with command-and-control regulations implementing BARCT and to provide an assessment of the RECLAIM program in order to achieve further NO_x emission reductions of five tons per day. During the adoption of the 2016 AQMP, the Resolution directed staff to modify control measure CMB-05 to achieve five tons per day of NO_x emission reductions as soon as feasible but no later than 2025, and to transition the RECLAIM program to a command-and-control regulatory structure requiring BARCT as soon as practicable.

In addition, on July 26, 2017, California State Assembly Bill 617 – Nonvehicular Air Pollution: Criteria Air Pollutants and Toxic Air Contaminants (AB 617) was approved by the Governor, which addresses nonvehicular air pollution (criteria pollutants and toxic air contaminants). RECLAIM facilities that are in the state's greenhouse gas cap-and-trade program are subject to

the requirements of AB 617. Among the requirements is for air districts to develop, by January 1, 2019, an expedited schedule for the implementation of BARCT no later than December 31, 2023, with highest priority to those permitted units that have not modified emissions-related permit conditions for the greatest period of time. The schedule shall not apply to an emissions unit that has implemented BARCT due to a permit revision or a new permit issuance since 2007.

One of the rules needed for the RECLAIM transition, is Proposed Rule 1109.1 – Emissions of Oxides of Nitrogen from Petroleum Refineries and Related Operations (PR 1109.1) which is an industry-specific command-and-control landing rule and will establish NOx BARCT limits or facility-wide emission reductions that are equivalent to BARCT, while preventing carbon monoxide (CO) emissions from increasing, for combustion equipment located at petroleum refineries and facilities with related operations to petroleum refineries. PR 1109.1 will affect sixteen facilities, including nine petroleum refineries, three small refineries, and four facilities with related operations and establish NOx BARCT limits for nearly three hundred pieces of combustion equipment. During the development of PR 1109.1, a co-pollutant issue was identified where installation of Selective Catalytic Reduction (SCR) systems can trigger NSR, requiring operators to reduce the sulfur content in refinery fuel gas. SCR is a key NOx emission reduction technology to achieve low levels of NOx under PR 1109.1. Staff is proposing a narrow BACT exemption under Proposed Amended Rule 1304 (PAR 1304) and changes to the BACT applicability in Proposed Amended Rule 2005 (PAR 2005) to allow facilities under PR 1109.1 to focus on meeting NOx limits without concurrently addressing refinery fuel gas cleanup.

Co-Pollutant Emissions from Installation of Selective Catalytic Reduction Systems

Installations of SCR systems to control NOx emissions from a refinery boiler or heater can result in a relatively small increase in emissions of particulate matter (PM) from the SCR system as ammonia emissions. Ammonia emissions from new and modified SCR systems are subject to BACT under Regulation XIII, which limits ammonia emissions to 5 ppm. Emissions of PM from the refinery boiler or heater occur as a result of the ammonium sulfate formed from the sulfur in the refinery fuel gas and ammonia from the SCR system. If the PM emissions are greater than one pound per day, Regulation XIII would apply, triggering BACT, which currently would require a 30 ppm sulfur limit^{1,2} in the refinery fuel gas.

There are five major petroleum refinery companies under PR 1109.1 representing seven refineries with separate South Coast AQMD Facility ID numbers. Of the seven refineries, two refineries have sulfur contents in their refinery fuel gas as low as 30 ppm or lower. The sulfur content in the refinery fuel gas for the other five refineries ranges between 40 to 179 ppm. It is possible that these five refineries will have SCR projects where the increase in emissions of PM is greater than one

¹ The sulfur limit for refinery gas in Rule 431.1 – Sulfur Content of Gaseous Fuels is 40 ppm calculated as hydrogen sulfide (H₂S). However, RECLAIM facilities are currently exempt from Rule 431.1 and the sulfur content in refinery fuel gas varies between refineries from 27 to 179 ppm. Since the lowest sulfur limit currently achieved in practice for refinery fuel gas is 30 ppm, it represents BACT for the sulfur content in refinery fuels.

² 40 CFR Part 60 Subpart J – Standards of Performance for Petroleum Refineries and 40 CFR Part 60 Subpart Ja – Standards of Performance for Petroleum Refineries for Which Construction, Reconstruction, or Modification Commenced After May 14, 2007 also specify possibly applicable sulfur emission limits for refinery fuel gas.

pound per day, triggering BACT requirements under Regulation XIII. BACT for the sulfur content in refinery fuel gas would require a sulfur treatment system to achieve a sulfur level of 30 ppm, which could cost over \$100 million to install.³ Figure 1 below demonstrates the generation of emissions of PM with an aerodynamic diameter less than or equal to 10 microns (PM₁₀) as a result of an SCR installation utilized as a NO_x control technology for a refinery heater.

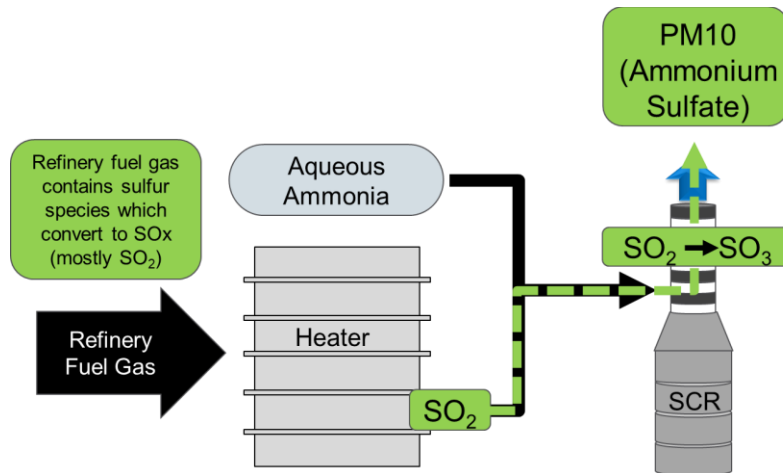


Figure 1-1. Schematic of Directly Emitted PM₁₀ Emissions Due to SCR Installation on a Refinery Heater

SCR installations will substantially reduce NO_x emissions but will also result in small increases in emissions of PM; potentially triggering the BACT requirement in Rule 1303 – Requirements (Rule 1303). It should be further noted that although there are increases in emissions of PM in the stack, the formation of PM in the ambient air is not expected to increase.

In addition to increases in emissions of PM from modifying or installing SCR systems, there may be an NSR increase of SO_x if a refinery replaces the basic equipment as part of the project. Although the replacement should be expected to result in a net emission reduction, assuming no increase in the cumulative total maximum rated capacity, with the removal of the older unit being replaced by a more efficient unit, projects that combine modifications or installations of SCR systems with basic equipment replacements will trigger BACT for PM₁₀ and SO_x under Regulation XIII and Rule 2005.

Under Regulation XIII, basic equipment replacements would trigger BACT because replacements are permitted as new units instead of modifications of existing sources. To determine the amount of offsets required and BACT applicability, new units use a zero baseline for the emission calculation.⁴ There are provisions in Rule 1304 that allow a facility to use the emission reductions

³ Staff will address refinery fuel sulfur content during the transition of SO_x RECLAIM to a command-and-control regulatory structure.

⁴ Rule 1306(d) is used to determine the amount of offsets required pursuant to Rule 1303(b)(2) and BACT applicability pursuant to Rule 1303(a).

from removing an older unit to offset the emissions for the replacement.⁵ Although Regulation XIII has offset exemptions for replacements, all new units, including replacements, are still required to meet BACT.

When discussing the co-pollutant emissions from installation of SCR systems, due to the ammonia slip from the SCR, projects that only involve the installation or modification of an SCR system could result in an increase of PM₁₀ emissions from the existing source. Projects that combine a unit replacement with installation or modification of an SCR system, could result in emission increases of both PM₁₀ and SO_x. Changes are needed in Regulation XIII and Rule 2005 to address the emission increase of PM₁₀ when the project involves the installation or modification of an SCR for an existing unit, and for both PM₁₀ and SO_x emission increases if a unit replacement is combined with the SCR project.⁶

REGULATORY BACKGROUND FOR NEW SOURCE REVIEW

South Coast AQMD has two NSR programs for nonattainment pollutants: Rule 2005 – New Source Review for RECLAIM (Rule 2005) and Regulation XIII – New Source Review (Regulation XIII). Rule 2005 establishes NSR requirements for NO_x and SO_x emission increases at RECLAIM facilities. Regulation XIII establishes NSR requirements for emission increases of nonattainment criteria pollutants and their precursors, ammonia, and ozone depleting compounds at any facility. For RECLAIM facilities, Regulation XIII only applies to pollutants not specifically regulated by Regulation XX.⁷ Both NSR programs are designed to implement state and federal NSR requirements and have been approved by California Air Resources Board (CARB) and United States Environmental Protection Agency (U.S. EPA) in 1996 for inclusion into the State Implementation Plan. Any changes or revisions to either NSR regulatory program will need to satisfy state and federal requirements that pertain to NSR. South Coast AQMD also has partial delegation to implement the PSD program for attainment pollutants through Regulation XVII.

Regulatory Background for Rule 1304

Regulation XIII establishes the federal and state mandated pre-construction review program for new, modified, or relocated sources within the jurisdiction of the South Coast AQMD, except for sources of NO_x and SO_x that are subject to Regulation XX. Regulation XIII currently consists of 13 rules, including Rule 1304 – Exemptions (Rule 1304). Rule 1304 includes exemptions for specific sources from the modeling requirement of Rule 1303 paragraph (b)(1) and the offsetting requirement of Rule 1303 paragraph (b)(2). Rule 1304 was adopted on October 5, 1979 and last amended on June 14, 1996.

⁵ Rule 1304(a)(1) specifies the offset exemption for replacements that are functionally identical to the source being replaced. Rule 1304(c)(2) specifies the offset exemption for facility modifications with emission reductions occurring concurrently with a new or modified source.

⁶ Since basic equipment replacements are considered new units with a zero baseline BACT is triggered for all pollutants. The proposed BACT exemption is only for PM₁₀ and SO_x, BACT for CO, which is triggered under Regulation XVII, and BACT for ammonia would still be required.

⁷ Emission increases of PM₁₀ and SO_x associated with SCR installations or modifications and basic equipment replacements at RECLAIM facilities would trigger BACT requirements for PM₁₀ under Regulation XIII and BACT requirements for SO_x under Rule 2005.

Regulatory Background for Rule 1325

Rule 1325 – Federal PM_{2.5} New Source Review Program (Rule 1325) incorporates federal major NSR requirements for PM_{2.5} into Regulation XIII. Rule 1325 applies to new Major Polluting Facilities of PM_{2.5}, Major Modifications to Major Polluting Facilities of PM_{2.5}, and any facility with an emission increase or potential to emit (PTE) of 70 tons per year or more of PM_{2.5} or its precursors, which are NO_x, SO_x, VOC, and ammonia. Rule 1325 only applies to sources within the South Coast Air Basin (SOCAB), which is designated as nonattainment for PM_{2.5}. Rule 1325 was adopted on June 3, 2011 and last amended on January 4, 2019.

PM_{2.5} is a sub-set of PM₁₀ and is defined as airborne particulate matter with a nominal aerodynamic diameter of 2.5 micrometer or less, including gaseous emissions which condense to form PM_{2.5} at ambient temperatures, and is measured in accordance with U.S. EPA Test Methods 201A and 202⁸. Since PM_{2.5} is a sub-set of PM₁₀, new or modified sources could not emit PM_{2.5} more than the Regulation XIII threshold values for PM₁₀ without providing offsets and applying BACT, which is equivalent to federal Lowest Achievable Emissions Rate (LAER). Currently, BACT for PM₁₀ is the same as BACT for PM_{2.5}. Rule 1325 regulates PM_{2.5} as a non-attainment pollutant and all other provisions in Regulation XIII do not apply to PM_{2.5}, including the exemptions in Rule 1304 or eligibility for the Priority Reserve through Rule 1309.1 – Priority Reserve.

Rule 1325 mirrors the federal requirements specified in Title 40 of the Code of Federal Regulations (CFR) under Part 51 Section 165 (40 CFR 51.165), which include the definitions and procedures to determine if LAER is applicable to a major source or major modification, as well as the significant emission rate and offsetting ratio for PM_{2.5}. The provisions in Rule 1325 were drawn from the provisions found in the CFR and were slightly modified to harmonize with the existing provisions in Regulation XIII, the public notice requirements in Rule 212, and the offset ratio for NO_x or SO_x based on Regulation XIII or Rule 2005, as applicable. Rule 1325 incorporates the federal NSR thresholds for PM_{2.5}, which is 10 tons per year for Major Modifications at existing Major Stationary Sources of PM_{2.5}. Projects for a Major Stationary Source for PM₁₀ and/or PM_{2.5} with a PTE greater than or equal to 10 tons per year would trigger federal major NSR for PM_{2.5} before exceeding the Major Modification threshold of 15 tons per year for PM₁₀. Since PM_{2.5} is a subset of PM₁₀, an emission increase of PM₁₀ would be evaluated according to the PM_{2.5} threshold in Rule 1325, unless the fraction of PM_{2.5} is quantified, since it is assumed that all the PM₁₀ emissions are PM_{2.5}.

Rule 1325 subdivision (h) – Test Methods references the source testing methods that must be used if a source test is required. This reference to the source testing methods does not imply that source testing is required under Rule 1325. Language has been added clarifying that nothing in Rule 1325 affects the calculation methodology of Rule 1304 subparagraph (f)(1)(E).

Regulatory Background for Regulation XVII

Regulation XVII – Prevention of Significant Deterioration (Regulation XVII) was adopted on October 7, 1988 to implement the federal Prevention of Significant Deterioration (PSD) program. Regulation XVII specifies the preconstruction review requirements for major stationary sources

⁸ Rule 1325 subdivision (h)

and major modifications that emit Attainment Air Contaminants.⁹ An Attainment Air Contaminant is any air pollutant with a NAAQS that has been designated as attainment or unclassifiable by U.S. EPA, or is a pollutant regulated under the federal Clean Air Act and no applicable NAAQS exists.¹⁰ South Coast AQMD is in attainment, except for the Coachella Valley, with the federal PM₁₀ air quality standards; PM₁₀ is designated as nonattainment with the state ambient air quality standards.

Regulatory Background for Rule 2005

Rule 2005 – New Source Review for RECLAIM (Rule 2005) sets forth the NSR requirements for new or modified equipment or processes at RECLAIM facilities. Rule 2005 only applies to NO_x and SO_x. RECLAIM NSR must be equivalent to the federal and state NSR requirements, and meets equivalency programmatically by requiring a source with an emission increase to: 1) be equipped with BACT, 2) conduct modeling to demonstrate that the emission increase will not be a significant increase in the air quality concentration of nitrogen dioxide (NO₂) if the facility's total emissions exceed its 1994 starting allocation plus non-tradable credits, and 3) hold sufficient RECLAIM Trading Credits (RTCs) to offset emission increases for one year prior to commencing operation and, for certain facilities, at the beginning of every compliance year thereafter. Rule 2005 was adopted as part of the RECLAIM program on October 15, 1993 and last amended on December 4, 2015.

State and Federal New Source Review Requirements

Federal Requirements

Federal NSR requirements are part of the NAAQS attainment strategy and vary based on the area's attainment designation for each regulated pollutant. Since the South Coast Air Basin (Basin) is designated as extreme nonattainment for federal ozone standards, the Basin is subject to the strictest federal NSR requirements for volatile organic compound (VOC) and NO_x sources. Extreme nonattainment thresholds for defining a federal Major Stationary Source or a Major Modification are the lowest thresholds to ensure that new and modified sources do not interfere with the Basin's progress towards reaching attainment.

Federal Nonattainment Major NSR Applicability

Under federal NSR, a new Major Stationary Source¹¹ or a Major Modification¹² at an existing Major Stationary Source with an emission increase that exceeds the Significant Emissions Increase thresholds would trigger federal NSR, require LAER,¹³ which is equivalent to BACT as required in Regulation XIII for Major Polluting Facilities, and require emission offsets. BACT is not required under federal NSR provided that an air pollution control project does not exceed the federal NSR thresholds using the federal NSR applicability test codified in Title 40 of the Code of Federal Regulations (CFR) under Part 51 Section 165 (40 CFR 51.165) and Part 52 Section 21 (40 CFR 52.21).

⁹ Rule 1701 – General subdivision (b)

¹⁰ Rule 1702 – Definitions subdivision (a)

¹¹ 40 CFR 51.165(a)(1)(iv)

¹² 40 CFR 51.165(a)(1)(v)

¹³ California Health and Safety Code Section 40405 defines state BACT similar to federal LAER

Table 1-1. Federal Nonattainment NSR Major Stationary Source Thresholds for SO_x, PM₁₀, and PM_{2.5}

Pollutant	Major Stationary Source PTE ¹⁴	Major Modification Significant Emissions Increase
	Tons per Year	
SO _x	70	40
PM ₁₀	70	15
PM _{2.5}	70	10

State Requirements

Under the California Clean Air Act and codified in Division 26 of the California Health and Safety Code, each air district is to include in its attainment plan a New Source Review program designed to achieve no net increase in emissions of nonattainment pollutants or their precursors for all new or modified sources with emission increases that exceed particular thresholds. South Coast AQMD uses a one pound per day “no net increase” threshold. In addition, similar to federal requirements, new and modified stationary sources are required to meet BACT, where BACT in California Health and Safety Code Section 40405 is defined the same as federal LAER. State NSR applies to new or modified sources with any emission increase, as compared to the federal major NSR which only applies to Major Stationary Sources and Major Source Modifications.

Senate Bill 288 – Protect California Air Act of 2003 (SB 288)

In 2002, U.S. EPA revised several components of the federal NSR program (2002 NSR Reform), which included changes to the NSR applicability test for modified major sources. In response to concerns with the federal NSR changes, Senate Bill 288, “Protect California Air Act of 2003” was enacted. One SB 288 provision, codified under California Health and Safety Code Section 42504, states “... *No air quality management district or air pollution control district may amend or revise its new source review rules or regulations to be less stringent than those that existed on December 30, 2002.*” Air districts can make NSR changes that are more stringent than existing provisions, but changes that are less stringent are only allowed under specific conditions. Some of the NSR changes allowed by SB 288 are:

- Replacement of a rule that has allowed exposure to toxics or a dangerous condition where the replacement will result in greater public health protection;
- Replacing a technically problematic rule;
- Amending a rule to relieve a business of substantial hardship, but the air district must offset any emission increases;
- Adopting a temporary rule to address an emergency; and

¹⁴ Only the Coachella Valley is designated as nonattainment for PM₁₀. Reclassification by U.S. EPA is currently pending additional data.

- For areas that attain all national ambient air quality standards if the changes will not impair maintenance with those standards or impair progress toward attaining state ambient air quality standards.

However, the NSR rule changes allowed, by these specific circumstances listed above, may not exempt or reduce the obligation to meet BACT for a major source that existed on December 30, 2002. For a rule change that is less stringent, the air district's board must base its decision to approve the rule change on substantial evidence in the record. The air district then submits the rules to CARB. If an SB 288 challenge is raised, CARB must, after a public hearing, approve or deny the rule changes. Approval is based on confirmation that the specific conditions as listed above are met.

SB 288 Applicability

SB 288 requires no backsliding of South Coast AQMD's NSR provisions that existed as of December 30, 2002. In 2002, South Coast AQMD had two NSR programs: Regulation XIII for non-RECLAIM "pollutants" and Rule 2005 for NO_x and SO_x RECLAIM. The proposed amendments to PAR 1304 and PAR 2005 are necessary due to the transition of NO_x RECLAIM to a command-and-control regulatory structure, which is requiring facilities to comply with NO_x BARCT rules at the same time that they are transitioning out of the market-based program. Incorporating an exemption in PAR 1304 and changing the BACT applicability in PAR 2005 for PM₁₀ and SO_x emission increases associated with SCR installations or modifications and basic equipment replacements to comply with NO_x BARCT standards will not be backsliding since the command-and-control rule provisions for RECLAIM facilities are more stringent than the requirements that existed in 2002. Under command-and-control operators must meet all NO_x BARCT standards, which is not a mandatory requirement in RECLAIM. Under RECLAIM, operators have the choice to install air pollution controls or purchase RTCs. Without the proposed command-and-control requirements, where SCR is needed to meet a NO_x BARCT standard, it is unlikely that the refineries would implement projects to meet that standard. Therefore, the BACT requirement would never in reality have been triggered by the installation of air pollution control equipment or replacement of equipment. Instead, refineries would most likely purchase RTCs over installing SCR, since it would require a sulfur treatment system to achieve a sulfur level of 30 ppm in refinery fuel gas, which could cost over \$100 million to install.

CARB is supportive of the proposal to add an exemption for PM₁₀ and SO_x emission increases from the installation or modification of air pollution control equipment. Staff has discussed with CARB the concepts for the proposed BACT exemption and believes that amending Rule 1304 and Rule 2005 will not be an SB 288 issue. The BACT exemption for compliance with NO_x BARCT is not a relaxation under SB 288, since the BACT exemption is for facilities transitioning out of RECLAIM to implement more stringent requirements under a command-and-control regulatory structure.

BACT Exemptions for Regulatory Compliance from Other California Air Districts

Other California air districts have provisions that exempt emission increases associated with installations or modifications for regulatory compliance. The following California air districts have

provisions that exempt sources from BACT when a source is complying with a regulatory requirement, such as a BARCT standard.

Bay Area Air Quality Management District (BAAQMD) Regulation 1

Section 1-115 (Exemption, Modification to Meet Emission Standards) exempts modifications to existing sources that are necessary to comply with an emission regulation from the BACT requirements of Section 2-2-301 (Best Available Control Technology Requirement) and the offsetting requirements of Section 2-2-302 (Offset Requirements, Precursor Organic Compounds and Nitrogen Oxides) and Section 2-2-303 (Offset Requirements, PM_{2.5}, PM₁₀ and Sulfur Dioxide).

BAAQMD Regulation 2 Rule 2

Section 2-2-102 (Exemption, Emissions from Operation of Abatement Devices and Techniques) exempts the emissions of secondary pollutants from the BACT requirements of Section 2-2-301 (Best Available Control Technology Requirement) that result from the use of an abatement device or emission reduction technique to comply with the BACT or BARCT requirements for control of another pollutant. Although the emissions of secondary pollutants are exempt from BACT, Reasonably Available Control Technology (RACT) for control of the secondary pollutants is still required.

San Joaquin Valley Air Pollution Control District (SJVAPCD) Rule 2201

SJVAPCD Rule 2201 has a BACT exemption for emission increases of all air pollutants at existing facilities that install or modify an emission control technique performed solely for the purpose of regulatory compliance, provided all of the following conditions are met:

- There is no increase in:
 - The physical or operational design of the existing facility, except for those changes to the design needed for the installation or modification of the emission control technique itself;
 - The permitted rating or permitted operating schedule of the permitted unit;
 - Emissions from the stationary source that will cause or contribute to any violation of a NAAQS, Prevention of Significant Deterioration increment, or Air Quality Related Value in Class I areas; and
- The project does not:
 - Result in an increase in permitted emissions or PTE of more than 25 tons per year of NO_x, or 25 tons per year of VOC, or 15 tons per year of SO_x, or 15 tons per year of PM₁₀, or 50 tons per year of CO; or
 - Constitute a federal Major Modification promulgated pursuant to Title I of the Federal Clean Air Act, including 40 CFR 51.165.

NEED FOR AMENDMENTS

Proposed amendments for Rule 1304 and Rule 2005 are necessary to implement a narrow BACT exemption to ensure NO_x reductions can be achieved under PR 1109.1. The exemption will be allowed for PM₁₀ caused by the installation or modification of air pollution control equipment and PM₁₀ and SO_x emission increases associated basic equipment replacements that are combined with

the installation or modification of air pollution control equipment for regulatory compliance with a BARCT rule required to transition the NO_x RECLAIM program to a command-and-control regulatory structure.

It is possible that installing SCR systems to achieve the PR 1109.1 NO_x limits of 5 ppm for boilers and heaters will result in an increase in emissions of PM that is greater than one pound per day, triggering BACT under Regulation XIII, which would require a sulfur treatment system to achieve a sulfur level of 30 ppm in refinery fuel gas, which could cost over \$100 million to install. The large cost to address relatively small PM₁₀ emission increases would substantially increase the cost-effectiveness to achieve the PR 1109.1 NO_x limits. Refinery fuel gas cleanup projects can reduce emissions of PM and SO_x, however, since PR 1109.1 is a NO_x rule the cost-effectiveness is based on the NO_x reductions while the cost, if refinery fuel gas cleanup was required, would include the cost of the installation of SCR plus refinery fuel gas cleanup. A narrow provision to exempt refineries from PM₁₀ and SO_x BACT requirements for SCR projects is needed to ensure cost-effective NO_x levels can be implemented under PR 1109.1. If refineries are not exempt from PM₁₀ and SO_x BACT requirements, then staff would need to look at a higher NO_x concentration limit that is not based on SCR systems, and anticipated NO_x reductions expected under PR 1109.1 would not come to fruition.

PR 1109.1 is designed to achieve significant NO_x reductions which are needed to attain the NAAQS for ozone. Staff worked with the U.S. EPA and the CARB on a path forward to achieve the NO_x emission reductions from PR 1109.1. This approach will require a change to South Coast AQMD's current NSR provisions. Staff is proposing to incorporate an exemption in Rule 1304 and to change the BACT applicability in Rule 2005 to allow SCR installations or modifications and equipment replacements needed to comply with a NO_x BARCT rule without triggering BACT.

Regulation XIII currently has an offsetting exemption for regulatory compliance under Rule 1304 (c)(4), for sources that are installed or modified solely to comply with local, state, or federal air pollution regulations, provided there is no increase in the maximum rated capacity of the source. When sources are exempt from offsetting under Rule 1304, South Coast AQMD provides and tracks offsets from the District Offset Accounts for Federal NSR Equivalency or "Internal Bank" for nonattainment air contaminants according to Rule 1315 – Federal New Source Review Tracking System (Rule 1315)¹⁵. In addition to tracking for federal NSR equivalency, South Coast AQMD tracks emission increases to demonstrate compliance with the state NSR requirement of no net increase of actual emissions for certain permitted new or modified sources, which is based on their PTE and the nonattainment classification of the area they are located.¹⁶ To ensure that emission increases are fully offset as required by federal major NSR, the offsets withdrawn from

¹⁵ Rule 1315 subdivision (c)

¹⁶ The amount of offsets that must be provided to demonstrate no net increase in emissions is based on the actual emissions from a new or modified source. However, the new or modified sources subject to the no net increase requirement is based on PTE of the source and the attainment classification where the source is located. For instance, California Health and Safety Code 40919(a)(2) specifies the requirements for areas classified as serious for air pollution, which applies to PM₁₀, and requires no net increase in actual PM₁₀ emission for new or modified sources with a PTE greater than or equal to 15 tons per year. The no net increase requirement for NO_x and VOC is specified in California Health and Safety Code 40920.5(b) and applies to any increase of actual emissions for all sources, regardless of their PTE.

the Internal Bank are for Major Stationary Sources and Major Modifications that are exempt under Rule 1304, but are still subject to the offsetting requirement under federal major NSR.^{17,18} The emission increases that could use the proposed BACT exemption in Rule 1304 will not be allowed to constitute a Major Stationary Source or Major Modification and therefore will not be subject to the federal major NSR offsetting requirement. Offsets will not be required to demonstrate equivalency with federal NSR for the emission increases that could be exempt from the BACT requirement, since the BACT exemption will be limited to emission increases that do not trigger federal major NSR and therefore there will be no impact to the offset availability for the Internal Bank. Additionally, PM₁₀ offsets for the accounting to demonstrate equivalency with federal major NSR are only required for emission increases of PM₁₀ sources in Coachella Valley. Effective July 26, 2013, U.S. EPA designated the South Coast Air Basin (SOCAB) as being in attainment with the federal PM₁₀ standard and therefore offsets for PM₁₀ are not required. However, since the Coachella Valley has not been designated as in attainment for the PM₁₀ NAAQS, South Coast AQMD tracks and reports PM₁₀ offsets from SOCAB for informational purposes only.¹⁹ Furthermore, some of the SO_x emission increases exempt from BACT that are for facilities still under the RECLAIM program are required to be offset according to the RTC holding requirement in Rule 2005. In addition to the state and federal offsetting equivalency demonstration, Rule 1315 subdivision (g) – California Environmental Quality Act Backstop Provisions requires tracking of all increases and decreases in PTE for major and minor sources that were exempt from providing offset under Rule 1304 or received offsets pursuant to Rule 1309.1. The purpose of Rule 1315 subdivision (g) is to ensure the cumulative net emission increases in any given year remain below the emission increases that were analyzed in the California Environmental Quality Act (CEQA) document for Rule 1315. The cumulative net emission increases for each year must remain below the threshold in Rule 1315 Table B in order for the Executive Officer to be able to continue to issue permits pursuant to Rule 1304 or Rule 1309.1. The September 3, 2021 Governing Board Status Report on Regulation XIII demonstrated that the actual and projected cumulative net emission increase of each nonattainment air contaminant at major and minor sources remain below the thresholds in Rule 1315 Table B. Based on the average increases and decreases in PTE at major and minor sources from 2011 through 2019 and the calculated PM₁₀ emission increases of 0.24 tons per day from sources that could potentially use the proposed BACT exemption in Rule 1304 and be exempt from offsetting for regulatory compliance under Rule 1304 paragraph (c)(4), the PM₁₀ thresholds in Rule 1315 Table B are not expected to be exceeded. Appendix B – Rule 1315 Subdivision (g) of this Staff Report provides additional information on the analysis estimating the potential increase in PM₁₀ emissions and the projected impact on the thresholds in Rule 1315 Table B.

PUBLIC PROCESS

Development of proposed amendments to Rule 1304 and Rule 2005 is being conducted through a public process. South Coast AQMD held remote Working Group Meetings for the proposed rule amendments as part of the Regulation XIII Working Group Meetings on January 21, 2021,

¹⁷ Rule 1315 Staff Report for the February 4, 2011 amendments

¹⁸ 77 FR 31200

¹⁹ Governing Board Status Report on Regulation XIII – New Source Review (September 3, 2021)

February 18, 2021, April 15, 2021, May 13, 2021, and June 16, 2021. The proposed amendments to Rules 1304 and 2005 were also discussed during the PR 1109.1 Working Group Meetings on July 17, 2020, August 12, 2020, February 4, 2021, March 4, 2021, May 27, 2021, and September 15, 2021. The working group includes representatives from affected facilities, business representatives, environmental groups, other agencies, consultants, and interested parties. The purpose of the Working Group Meetings is to discuss the proposed amendments and offer stakeholders the opportunity to provide input and raise concerns during the rule development process with the objective to build a consensus and resolve key issues. The proposed amendments were also presented to community members that were interested in better understanding the requirements and implementation of the proposed amended rules during a Study Session on September 10, 2021.

Additionally, a Public Workshop was held on September 1, 2021.

CHAPTER 2: SUMMARY OF PROPOSED AMENDMENTS

PROPOSED AMENDED RULE 2005

PROPOSED AMENDED RULE 1304

PROPOSED AMENDED RULE 2005

Currently, all new or modified sources at a RECLAIM facility with an emission increase of a RECLAIM pollutant are subject to BACT under Rule 2005 subparagraph (c)(1)(A). The proposed provision in PAR 2005 paragraph (c)(5) allows a RECLAIM facility, installing add-on air pollution control equipment to comply with a command-and-control NO_x emission limit for a Regulation XI rule, to apply the BACT requirement for a SO_x emission increase under Rule 1303 paragraph (a)(1) instead of BACT under Rule 2005 subparagraph (c)(1)(a). RECLAIM facilities electing to meet the BACT requirement under Rule 1303 can use the limited BACT exemption in PAR 1304 subdivision (f) if the new or modified source meets the criteria specified in PAR 1304 subparagraphs (f)(1)(A) through (E).

Although these are RECLAIM facilities, these new or modified sources are subject to a Regulation XI rule as part of transitioning the RECLAIM program to a command-and-control regulatory structure. Therefore, these new or modified sources may be regulated under the command-and-control BACT provision in Regulation XIII. Regulating these sources under Regulation XIII is necessary to allow the use of the limited BACT exemption in PAR 1304, since the PM₁₀ and/or SO_x emission increases from the new or modified sources are a result of a NO_x rule in Regulation XI.

PROPOSED AMENDED RULE 1304

The proposed amendments to Rule 1304 are needed to ensure NO_x reductions can be achieved under PR 1109.1. The objective of PAR 1304 is to add a BACT exemption for PM₁₀ and SO_x emission increases associated with SCR installations or modifications to achieve proposed NO_x concentration limits in PR 1109.1. SCR installations to control NO_x emissions from a refinery boiler or heater subject to the BARCT limits in PR 1109.1 can result in emissions of PM due to the ammonium sulfate formed from the unreacted ammonia in the SCR catalyst and the sulfur in the refinery fuel gas. Additionally, SCR installations or modifications combined with basic equipment replacements would result in an emission increase for SO_x. Since an increase in emissions of PM and/or SO_x would trigger BACT requirements, staff worked with CARB and U.S. EPA on a resolution to attain the substantial NO_x reductions from implementing the required control strategies to comply with the proposed NO_x BARCT requirements in PR 1109.1. Staff proposes to incorporate a BACT exemption in PAR 1304 to allow the installation or modification of an emission control technology, such as SCR, to comply with a NO_x BARCT rule without requiring BACT.

The BACT exemption from SJVAPCD was used as an example when developing the proposed BACT exemption to add in PAR 1304. Staff is proposing a similar, but narrower, BACT exemption that was developed with input from CARB and U.S. EPA. The BACT exemption is limited to:

- Projects that comply with a rule that establishes a BARCT emission limit for NO_x;
- RECLAIM or former RECLAIM facilities that are complying with a NO_x BARCT emission limit that is part of the transition from NO_x RECLAIM to command-and-control regulatory structure;

- PM₁₀ and/or SO_x emission increases; and
- Projects below the federal major NSR thresholds.

The proposed BACT exemption will not apply to:

- Ammonia emissions associated with SCR installations;
- Projects with an increase in total capacity or utilization (including hours and throughput);
or
- Additional improvements or upgrades that are not required for BARCT compliance.

PAR 1304 Paragraph (f)(1)

The limited BACT exemption specified in PAR 1304 paragraph (f)(1) is only applicable to new or modified permit units with PM₁₀ and/or SO_x emission increases caused by the installation or modification and operation of add-on air pollution control equipment or associated with the replacement of basic equipment that is combined with the installation or modification of add-on air pollution control equipment, provided each requirement in PAR 1304 subparagraphs (f)(1)(A) through (E) is met. Projects for regulatory compliance with a NO_x BARCT landing rule could result in emission increases of just PM₁₀, if the project only involves the installation or modification of an SCR for an existing unit, or both PM₁₀ and SO_x, if the SCR project also includes the replacement of the basic equipment. Projects for NO_x BARCT compliance, that only involve replacement of existing units with new units without the installation or modification of add-on air pollution control equipment, such as SCR, would not qualify for the BACT exemption. Additionally, PAR 1304 paragraph (f)(1) is consistent with other current provisions in Rule 1304, and the exemption from the BACT requirement of Rule 1303 paragraph (a)(1) must be approved by the Executive Officer or designee, which would be determined at the time of permitting.

The BACT exemption is only for PM₁₀ and SO_x emission increases associated with the installation or modification and operation of add-on air pollution control equipment for compliance with command-and-control requirements at RECLAIM and former RECLAIM facilities to transition NO_x RECLAIM. This BACT exemption will not be backsliding under SB 288 since the more stringent command-and-control landing rule provisions for RECLAIM facilities did not exist in 2002. The objective of the proposed narrow BACT exemption is to address the co-pollutant issue tied to the installation or modification of add-on air pollution controls and the replacement of equipment that is combined with an installation or modification of add-on air pollution control required to transition NO_x RECLAIM and therefore cannot be extended to non-RECLAIM facilities as it would result in an SB 288 issue.

PAR 1304 Subparagraph (f)(1)(A)

PAR 1304 subparagraph (f)(1)(A) limits the BACT exemption to new or modified permit units being installed or modified at RECLAIM or former RECLAIM facilities to comply with a NO_x BARCT rule to transition the NO_x RECLAIM program to command-and-control regulatory structure. Qualifying projects undertaken to meet conditional NO_x Concentration Limits and Alternative BARCT NO_x Limits, such as concentration NO_x limits for a B-Plan or B-Cap, for PR 1109.1 may use the limited BACT exemption. Conditional NO_x Concentration Limits and Alternative BARCT NO_x Limits are considered NO_x BARCT emission limits specified in

PAR 1304 subparagraph (f)(1)(A). The NO_x BARCT limits must have been initially established before December 31, 2023. The BACT exemption will not apply to future BARCT rules with new limits initiated after December 31, 2023. Although the cutoff date excludes using the BACT exemption for future BARCT rules, the BACT exemption would apply to NO_x BARCT limits that are later revised if they were initially established before December 31, 2023. Additionally, projects with applications that were not deemed complete prior to the September 1, 2021 Public Workshop for PAR 1304 and that were needed to comply with a NO_x BARCT standard established as part of the NO_x RECLAIM transition qualify for the BACT exemption.

PAR 1304 Subparagraph (f)(1)(B)

The proposed provision under PAR 1304 subparagraph (f)(1)(B) limits the BACT exemption to projects that have no increase in the cumulative total maximum rated capacity. The maximum rated capacity is based on the allowable permitted heat input capacity of the permit unit(s). However, if a maximum rated capacity is not specified on a permit, then the maximum rated capacity is based on the physical design capacity or the capacity specified on the nameplate of a combustion unit. Replacement projects with a variable number of units being replaced would be allowed under PAR 1304 subparagraph (f)(1)(B) as long as the post-project cumulative total maximum rated capacity does not exceed the pre-project cumulative total maximum rated capacity for the existing unit(s). A single unit can be replaced with one or more units or multiple units can be replaced with one or more units, as long as there is no increase in the cumulative total maximum rated capacity of the existing unit(s) being replaced and the replacement(s) serve the same purpose. The criteria to require that a replacement serve the same purpose as the unit being replaced was developed according to the definition for a replacement unit under federal NSR.²⁰ Under federal NSR, to be considered a replacement, a unit must be reconstructed²¹ or completely take the place of an existing unit, be identical to or functionally equivalent²² to the replaced unit, not alter the basic design parameters²³ of the process unit being replaced, and be replacing a unit that is permanently removed, disabled, or barred from operation by an enforceable permit. Replacements that meet the criteria under federal NSR can be considered an existing emissions unit²⁴ for the purpose of determining federal major NSR applicability. NSR applicability for an existing emissions unit uses a Baseline Actual-to-Projected-Actual test where the baseline actual emissions are based on the pre-project emissions.²⁵

The PAR 1304 BACT exemption can be used for situations where a unit will be replaced with a new unit from a different source category (e.g., a boiler for a turbine). If the new unit is installed

²⁰ 40 CFR 51.165(a)(1)(xxi) and 40 CFR 52.21(b)(33) defined replacement unit

²¹ A reconstructed unit as defined in 40 CFR 60.15(b)

²² 40 CFR 51.165(a)(1)(xliv) and 40 CFR 52.21(b)(56) define functionally equivalent component, which means a component that serves the same purpose as the replaced component. The definitions of functionally equivalent component and basic design parameters were vacated. However, even though these definitions were removed, they can still be used as guidance to define replacements. See 86 FR 37918 stating: “However, while not controlling, the EPA and stakeholders may continue to look to the vacated definitions from the ERP rule to guide their understanding of the definition of replacement unit.”

²³ 40 CFR 51.165(h)(2) and 40 CFR 52.21(cc)(2) define basic design parameters

²⁴ 40 CFR 51.165(a)(1)(vii)(B) and 40 CFR 52.21(b)(7)(ii)

²⁵ 40 CFR 51.165(a)(2)(ii)(C) and 40 CFR 52.21(a)(2)(iv)(c)

to meet a NO_x BARCT limit and serves the same purpose, then the BACT exemption will not be restricted to require that the new unit be of the same source category. Units from different source categories that might “serve the same purpose” would not have the same basic design parameters and therefore would not meet the federal definition for a replacement. A unit being replaced with a unit from a different source category would then be considered a new emissions unit rather than a replacement unit, which is an existing emissions unit under federal NSR, since the unit would not meet the federal definition for a replacement. For a new emissions unit, federal major NSR applicability is determined using a Baseline Actual-to-Potential test where the baseline emissions are zero. As compared to an existing unit, and replacements that meet the federal definition for replacement, may use the Baseline Actual-to-Projected-Actual test and the pre-project emissions as the baseline emissions. If the unit treated as a new unit qualifies as a major modification, then it would not be able to use the BACT exemption in PAR 1304.

Below are examples of SCR installations with different replacement scenarios. As shown in the examples, the cumulative total maximum rated capacity for a project is determined by adding the maximum rated capacity of each of the grouped units. In the examples provided, the replacements are associated with an SCR installation since the BACT exemption is only applicable to projects that involve add-on air pollution control equipment.

Table 2-1. Examples of Project Scenarios with SCR Installations and Equipment Replacements

Project Scenario	Pre-Project Unit(s)	Post-Project Unit(s)
SCR installation and replacement of a single existing unit with a new unit	Existing Unit = 100 MMBtu/hr	New Unit = 100 MMBtu/hr
SCR installation and replacement of one existing unit with two new units	Existing Unit = 100 MMBtu/hr	New Unit = 60 MMBtu/hr
		New Unit = 40 MMBtu/hr
SCR installation and replacement of two existing units with a new unit	Existing Unit = 60 MMBtu/hr	New Unit = 100 MMBtu/hr
	Existing Unit = 40 MMBtu/hr	
SCR installation and replacement of four existing units with two new units	Existing Unit = 50 MMBtu/hr	New Unit = 75 MMBtu/hr
	Existing Unit = 50 MMBtu/hr	
	Existing Unit = 50 MMBtu/hr	New Unit = 75 MMBtu/hr
	Existing Unit = 50 MMBtu/hr	
SCR installation and replacement of two existing units with three new units	Existing Unit = 75 MMBtu/hr	New Unit = 50 MMBtu/hr
	Existing Unit = 75 MMBtu/hr	New Unit = 50 MMBtu/hr
		New Unit = 50 MMBtu/hr

PAR 1304 subparagraph (f)(1)(B) also includes a provision to avoid extended delays during equipment replacement by limiting simultaneous operations of new or modified permit unit(s) with the equipment being replaced to a maximum of 90 days, which is consistent with the startup period allowed in division (d) of Rule 1313 – Permits to Operate.

PAR 1304 Subparagraph (f)(1)(C)

The proposed provision in PAR 1304 subparagraph (f)(1)(C) is to ensure there is no increase in the physical or operation design capacity for the entire facility, except for the changes needed for the new or modified permit unit(s) that meet the criteria of PAR 1304 subparagraph (f)(1)(B). This provision differs from PAR 1304 subparagraph (f)(1)(B) which specifies the criteria to ensure

there is no increase in the cumulative total maximum rated capacity for the new or modified permitted unit(s). PAR 1304 subparagraph (f)(1)(C) also specifies that an increase in efficiency is not an increase in the physical and operational design capacity.

The BACT exemption is not applicable for facility expansions, modernization projects, upgrades, or improvements that are not for BARCT compliance. This provision is to ensure that the BACT exemption is not used for the facility to increase utilization or capacity, which may result in higher emissions. The BACT exemption is not intended for debottlenecking or shifting loads from existing units to new or modified units with add-on air pollution controls, which would result in both an increase in utilization and actual emissions above current allowable levels. Excluding projects that are not related to an air pollution control project for NO_x BARCT compliance, such as those that are solely for facility modernization or expansion, is necessary to ensure that the limited BACT exemption would not be backsliding under SB 288.

PAR 1304 Subparagraph (f)(1)(D)

The proposed criteria in PAR 1304 subparagraph (f)(1)(D) requires that the emissions from new or modified permit unit do not cause an exceedance of any state or national ambient air quality standard. This provision is a safeguard to ensure that an emission increase associated with the new or modified permit unit will not result in a potential exceedance of any ambient air quality standard, as demonstrated with modeling as required in Rule 1303 paragraph (b)(1). Rule 1303 paragraph (b)(1) requires that an applicant substantiate with modeling that a source will not cause a violation, or make significantly worse an existing violation, of any state or national ambient air quality standard at any receptor location within the South Coast Air Quality Management District. Modeling for Rule 1303 paragraph (b)(1) is conducted according to Appendix A of Rule 1303, or other analysis approved by the Executive Officer or designee. Appendix A specifies that an applicant must show that a significant increase in air quality concentration will not occur at any receptor location by either providing an approved modeling analysis or using the Screening Analysis. The Screening Analysis compares the emissions from the source an applicant is applying for to the Allowable Emissions in Table A-1. If the emissions are less than the Allowable Emissions, then no further analysis is required. If the emissions are greater than the allowable emissions, a more detailed air quality modeling analysis is required. Furthermore, the modeling demonstration is not required for VOC or SO_x.

PAR 1304 Subparagraph (f)(1)(E)

PAR 1304 subparagraph (f)(1)(E) specifies that the BACT exemption can only apply to new or modified permit units that are not part of a project that is subject to federal major NSR. New or modified permit units that constitute a federal Major Stationary Source or Major Modification will be subject to BACT. Federal NSR applicability will be determined according to the federal definitions for Major Stationary Source or Major Modification as defined in 40 CFR 51.165 and 40 CFR 52.21. The provisions for the federal NSR program codified in 40 CFR 51.165 are applicable to the nonattainment pollutants, while 40 CFR 52.21 are the federal Prevention of Significant Deterioration (PSD) provision for attainment/unclassifiable pollutants. Appendix A – Federal New Source Review of this Staff Report provides additional information and a general

guideline to implement the federal major NSR applicability test, which is incorporated by reference in PAR 1304.

For the purpose of determining federal major NSR applicability, emissions of PM will be calculated using the methodology below. PAR 1304 includes a provision in subparagraph (f)(1)(E) to make express that it is permissible to use a mass balance engineering calculation to calculate the increase in emissions of PM when installing add-or air pollution control equipment with ammonia. A mass balance calculation may be used provided it employs the percent conversion of SO₂ to SO₃ found in the catalyst manufacturer specifications and uses the representative fuel gas sulfur content. U.S. EPA confirmed that this approach is acceptable for the purpose of NSR applicability.

Calculations for Estimating PM for NSR Applicability

PM Mass Flow Rate Calculation: Pounds per Day

The following calculation method will be used to determine if the federal major NSR threshold is exceeded prior to issuance of the permit to construct. Emissions of PM calculation will be in pounds per day and compared to the federal major NSR threshold in tons per year. The following steps are used to calculate mass flow rate:

1. Calculate molar flow rate of refinery fuel gas used
2. Calculate the moles of SO₂ formed based on the fuel gas sulfur composition. Assume 100% total sulfur (expressed as H₂S) in the fuel gas is converted to SO₂
3. Calculate conversion of SO₂ to SO₃ in moles – SO₂ to SO₃ oxidation rate (based on provided manufacturer specifications of catalyst from the facility)
4. Calculate production of ammonium sulfate from SO₃. Assume 100% SO₃ is converted to ammonium sulfate
5. Convert molar flow rate of ammonium sulfate to mass flow rate

Example PM Calculation Related to SCR Installation

Consider a new SCR to be installed on an existing heater with a maximum rated heat input of 875 MMBtu/hr. Assuming worst case, 5% SO₂ would be converted to SO₃. Again, assuming worst case, the total sulfur concentration in the refinery fuel gas is 179 ppmv and average higher heating value is 1,330 btu/scf. Therefore, assuming a 5% SO₂ to SO₃ conversion, PM₁₀ as ammonium sulfate is calculated as follows:

$$\frac{179 \text{ lbmol total S as H}_2\text{S}}{1 \times 10^6 \text{ lbmol fuel gas}} \times \frac{1 \text{ lbmol SO}_2}{1 \text{ lbmol H}_2\text{S}} \times \frac{1 \text{ lbmol FG}}{385.5 \text{ scf FG}} \times \frac{1 \text{ scf FG}}{1,330 \text{ BTU}} \times \frac{875 \times 10^6 \text{ BTU}}{1 \text{ hr}} \times \frac{0.05 \text{ lbmol SO}_3}{1 \text{ lbmol SO}_2} = \frac{0.015 \text{ lbmol SO}_3}{\text{hr}}$$

$$\frac{0.015 \text{ lbmol SO}_3}{\text{hr}} \times \frac{1 \text{ lbmol (NH}_4)_2\text{SO}_4}{1 \text{ lbmol SO}_3} \times \frac{132 \text{ lb (NH}_4)_2\text{SO}_4}{1 \text{ lbmol (NH}_4)_2\text{SO}_4} = \frac{1.98 \text{ lb (NH}_4)_2\text{SO}_4}{\text{hr}} \text{ or } \frac{47.52 \text{ lb (NH}_4)_2\text{SO}_4}{\text{day}}$$

Assuming continuous operations throughout the year, 47.5 pounds of ammonia sulfate per day equals 8.7 tons of PM₁₀ per year.

For the purpose of determining federal major NSR applicability for emissions of PM, the methodology described above will be used in lieu of conducting a source test when a facility submits a permit application for an SCR installation or modification. South Coast AQMD Source

Test Method 5.2 – Determination of Particulate Matter Emissions from Stationary Sources Using Heated Probe and Filter Source Test introduces an SO₂ oxidation bias in the measured PM condensable (back half) portion due to the sulfur dioxide dissolved in the impinger water converting to sulfur trioxide and then to sulfuric acid. The PM reference method is designed to measure Particulate Matter as defined in Rule 102 - Definition of Terms. Since federal major NSR applicability is based on the PM exiting the stack rather than the PM that would form regionally, the emissions for PM may be calculated using a mass balance calculation. During the permitting process, staff will work with operators to establish the appropriate condition to be included in the permit to reflect the parameters used to calculate the increase in emissions of PM such as the SO₂ to SO₃ percent conversion as specified by the catalyst manufacturer and the fuel gas sulfur content that is representative of the actual sulfur content will be incorporated into the facility's permit as enforceable permit conditions.

Due to the variability in the sulfur content among sources, the representative sulfur content used in the equation to calculate the increase in emissions of PM should represent the upper limit of an averaged value over a certain period. This calculation will be used to satisfy federal NSR, which is based on a tons per year basis, as well as Regulation XIII, which is based on pounds per day basis. Compliance with the permit limits will need to be demonstrated on a pounds per day (30-day average), as well as a tons/year basis. Rule 1315 requires South Coast AQMD to demonstrate equivalency with federal NSR offset requirements for major sources that are exempt from offsets under Rule 1304, therefore compliance with the permit limits will need to be demonstrated on a pounds per day (30-day average), as well as a tons/year basis.

Calculations for Estimating Emissions of PM for NSR Applicability

To determine if the new or modified permit unit(s) exceed the PM threshold for federal major NSR applicability, calculated values as shown in the table below will be used. Emission factors derived from source test will not be utilized. Table 2-2 – Maximum Firing Rate at Federal PM₁₀ Threshold below determines the maximum firing rate at the federal threshold varying by oxidation rate and sulfur content. The emissions of PM will depend on several variables:

- Size of the unit;
- SO₂ to SO₃ oxidation over the catalyst; and
- Sulfur Content of the fuel.

SCR catalyst SO₂ oxidation rates will vary by catalyst manufacturers; lowest is 0.5% and highest can be 5%.

Table 2-2. Maximum Firing Rate at Federal PM₁₀ Threshold

SO ₂ to SO ₃ Oxidation Rate	Firing Rate (MMBTU/hr) at Varying Total Sulfur ppm Required to Exceed Federal PM ₁₀ threshold (10 Tons per Year)			
	40 ppm sulfur	110 ppm sulfur	150 ppm sulfur	179 ppm sulfur
0.5%	39,152	14,237	10,441	8,749
1.0%	19,576	7,119	5,220	4,375
1.5%	13,051	4,746	3,480	2,916
2.0%	9,788	3,559	2,610	2,187
2.5%	7,830	2,847	2,088	1,750
3.0%	6,525	2,373	1,740	1,458
3.5%	5,593	2,034	1,492	1,250
4.0%	4,894	1,780	1,305	1,094
4.5%	4,350	1,582	1,160	972
5.0%	3,915	1,424	1,044	875

PAR 1304 Paragraph (f)(2)

The purpose of PAR 1304 paragraph (f)(2) is to clarify that new or modified permit units that qualify for the BACT exemption specified in PAR 1304 paragraph (f)(1) are still subject to all other requirements of Regulation XIII, including but not limited to, permit conditions limiting monthly maximum emissions as required in Rule 1313 – Permits to Operate. Specifically, permits issued utilizing the narrow BACT exemption are still required to have permit conditions limiting monthly maximum emissions pursuant to Rule 1313 paragraph (g)(2).

Existing Permit Limits

Permits with existing limits will need to be evaluated on a case-by-case basis to determine how to account for the emission increases that are exempt from BACT. Current permit limits may not account for the emission increase and therefore require new permit limits that reflect the assumptions used to determine that a unit did not exceed the federal NSR thresholds or trigger other regulatory requirements such as sulfur content in refinery fuel gas and SO₂ to SO₃ conversion rates of the SCR.

CHAPTER 3: IMPACT ASSESSMENT

POTENTIALLY IMPACTED FACILITIES

CALIFORNIA ENVIRONMENTAL QUALITY ACT

SOCIOECONOMIC ASSESSMENT

DRAFT FINDINGS UNDER CALIFORNIA HEALTH AND
SAFETY CODE SECTION 40727

COMPARATIVE ANALYSIS

POTENTIALLY IMPACTED FACILITIES

The proposed amendments to Rule 1304 and Rule 2005 technically would apply to all facilities in the NO_x RECLAIM program that transitioned or are in the process of transitioning to a command-and-control regulatory structure which meet the criteria for the BACT exemption for PM₁₀ and SO_x emission increases that result from the installation or modification of an emission control technique required to comply with South Coast AQMD command-and-control NO_x BARCT standards. It is expected that only five of the seven refineries that have a sulfur content in their fuel gas would elect to meet the BACT requirement under Rule 1303 allowed by PAR 2005 and meet the criteria for the BACT exemption in PAR 1304 due to the installation of SCR systems to meet NO_x concentration limits under PR 1109.1.

CALIFORNIA ENVIRONMENTAL QUALITY ACT

Pursuant to the California Environmental Quality Act (CEQA) and South Coast AQMD's Certified Regulatory Program (Public Resources Code Section 21080.5 and CEQA Guidelines Section 15251(l); codified in South Coast AQMD Rule 110), the South Coast AQMD is lead agency for the proposed project, which is comprised of Proposed Rules 1109.1 and 429.1, Proposed Amended Rules 1304 and 2005, and Proposed Rescinded Rule 1109. CEQA Guidelines Section 15187 requires an environmental analysis to be performed when a public agency proposes to adopt a new rule or regulation requiring the installation of air pollution control equipment or establishing a performance standard, which is the case with the proposed project. The South Coast AQMD is preparing a Subsequent Environmental Assessment (SEA) for the proposed project, which is a substitute CEQA document pursuant to CEQA Guidelines Section 15252, prepared in lieu of a Subsequent Environmental Impact Report. The SEA will contain the environmental analysis required by CEQA Guidelines Section 15187 and will tier off of the December 2015 Final Program Environmental Assessment (PEA) for Proposed Amended Regulation XX – Regional Clean Air Incentives Market (RECLAIM) (referred to as NO_x RECLAIM) and the March 2017 Final Program Environmental Impact Report (EIR) for the 2016 Air Quality Management Plan as allowed by CEQA Guidelines Sections 15152, 15162, 15168 and 15385. The Draft SEA will be released for a 45-day public review and comment period to provide public agencies and the public an opportunity to obtain, review, and comment on the environmental analysis. Comments made relative to the analysis in the Draft SEA and responses to the comments will be included in the Final SEA.

SOCIOECONOMIC ASSESSMENT

The proposed amendments to Rule 1304 and Rule 2005 are administrative in nature and do not impose additional costs on the affected facilities. As such, no adverse socioeconomic impacts are anticipated.

DRAFT FINDINGS UNDER CALIFORNIA HEALTH AND SAFETY CODE SECTION 40727

California Health & Safety Code Section 40727 requires that the Board make findings of necessity, authority, clarity, consistency, non-duplication, and reference based on relevant information presented at the public hearing and in the staff report. The draft findings are as follows:

Necessity

PAR 1304 and PAR 2005 are necessary to implement a narrow BACT exemption for PM₁₀ and SO_x emission increases associated with a project to reduce air pollution that includes air pollution control equipment installed to comply with a NO_x BARCT standard at a RECLAIM or former RECLAIM facility that is transitioning from the RECLAIM program to a command-and-control regulatory structure.

Authority

The South Coast AQMD obtains its authority to adopt, amend, or repeal rules and regulations from the California Health and Safety Code Sections 39002, 40000, 40001, 40440, 40441, 40702, and 41508; and the Federal Clean Air Act.

Clarity

PAR 1304 and PAR 2005 have been written or displayed so that its meaning can be easily understood by the persons affected by the rule.

Consistency

PAR 1304 and PAR 2005 are in harmony with, and not in conflict with or contradictory to, existing federal or state statutes, court decisions or federal regulations.

Non-Duplication

PAR 1304 and PAR 2005 do not impose the same requirement as any existing state or federal regulation and is necessary and proper to execute the powers and duties granted to, and imposed upon the South Coast AQMD.

Reference

In amending Rule 1304 and Rule 2005, the following statutes which the South Coast AQMD hereby implements, interprets or makes specific are referenced: California Health and Safety Code Sections 39002, 40001, 40440, 40506, 40702, and 42300; and the Federal Clean Air Act Sections 172(c)(5) and 173.

COMPARATIVE ANALYSIS

In order to determine compliance with California Health and Safety Code Section 40727, Section 40727.2 requires a comparative analysis of the proposed amended rules with any Federal or District rules and regulations applicable to the same source. California Health and Safety Code Section 40727.2 (g) is not applicable because PAR 1304 and PAR 2005 do not impose a new or more stringent emission limit or standard, or other air pollution control monitoring, reporting or recordkeeping requirements. As a result, a comparative analysis is not required.

Appendix A – FEDERAL NEW SOURCE REVIEW

INTRODUCTION

The purpose of this Appendix is to provide general guidance for implementing the federal major New Source Review (NSR) provisions codified in Title 40 of the Code of Federal Regulations (CFR) under Part 51 Section 165 (40 CFR 51.165) and Part 52 Section 21 (40 CFR 52.21). The proposed BACT exemption under PAR 1304 subdivision (f) is only applicable to new or modified permit units that are not part of a project subject to federal major NSR. New or modified permit units subject to federal major NSR will not be allowed to use the BACT exemption in PAR 1304. To determine federal major NSR applicability for a proposed project, the federal definitions and calculation procedures specified in 40 CFR 51.165 and 40 CFR 52.21 will be used.

BACKGROUND

NSR is a preconstruction permitting program established under the Clean Air Act (CAA), which requires new Major Stationary Sources and Major Modifications of existing Major Stationary Sources to obtain a federal major NSR permit prior to beginning construction. The federal major NSR program comprises the nonattainment NSR program for sources in areas exceeding the National Ambient Air Quality Standards (NAAQS), and the Prevention of Significant Deterioration (PSD) program for sources in attainment or unclassifiable areas. These provisions are codified in 40 CFR 51.165 and 40 CFR 52.21, respectively. The nonattainment NSR program applies to nonattainment pollutants and their precursors, which for South Coast AQMD are NO_x, VOC, PM_{2.5}, SO_x, and NH₃. The federal NSR provisions codified in 40 CFR 52.21 apply to all other pollutants regulated under the PSD program,²⁶ which for South Coast AQMD includes, but is not limited to, CO and PM₁₀. Sources in nonattainment areas that will emit a nonattainment pollutant above a specific NSR threshold are required to offset the emission increase and meet Lowest Achievable Emission Rate (LAER), while sources in an attainment or unclassifiable area subject to PSD must meet federal Best Available Control Technology (BACT).²⁷

APPLICABILITY OF FEDERAL NEW SOURCE REVIEW

To determine if a new or modified permit unit is not a federal major NSR event, and therefore eligible for the Rule 1304 BACT exemption, the definitions and applicable provisions in 40 CFR 51.165 and 40 CFR 52.21 shall be used. Under federal major NSR, a source is subject to federal NSR requirements if the emission increase associated with an NSR event exceeds the applicable federal NSR threshold. The applicable NSR threshold and calculation method used depends on whether the NSR event is for a new Major Stationary Source or a Major Modification of an existing Major Stationary Source.

Major Stationary Source

The first step in determining if an NSR event is subject to federal major NSR requirements is to determine if the facility or project is a Major Stationary Source under the applicable federal major NSR program. Federal major NSR defines a Major Stationary Source as any source that emits, or has the potential to emit (PTE), any regulated NSR air pollutant at or above a specified threshold,

²⁶ PSD also applies to other regulated NSR pollutants, such as, but not limited to, lead, sulfuric acid, H₂S, and fluorides.

²⁷ Sources are subject to other NSR requirements depending on the applicable federal NSR program.

which is dependent on whether a source is subject to the nonattainment NSR program or the PSD program.

Major Stationary Source Thresholds for South Coast AQMD Sources

A source in South Coast AQMD is subject to major NSR requirements if its PTE equals or exceeds a threshold for a Major Stationary Source listed in Table A-1 below. Major Stationary Source²⁸ as defined under federal major NSR means the same as a Major Polluting Facility as is defined in Regulation XIII.²⁹

Table A-1. Federal NSR Major Stationary Source Thresholds for SO_x, PM₁₀, and PM_{2.5}

Pollutant	South Coast AQMD Federal Attainment Status	Major Stationary Source PTE Thresholds (tons per year)
SO _x	Nonattainment (PM _{2.5} Precursor)	70
PM ₁₀	Nonattainment ³⁰	70
PM _{2.5}	Serious Nonattainment	70

An NSR event for a new facility or project with a PTE less than the Major Stationary Source thresholds is not subject to federal major NSR. However, if a NSR event is a modification to an existing Major Stationary Source, then a multi-step process is used to determine whether it is a Major Modification subject to federal major NSR requirements. Additionally, a project at a minor source (i.e., a facility with a PTE below the Major Stationary Source thresholds) that by itself results in an emission increase equal to or greater than a Major Stationary Source threshold would be considered a Major Stationary Source for that pollutant for nonattainment NSR.³¹

Major Modification

Under federal major NSR, a project is considered to be a Major Modification and subject to federal NSR requirements only if the project meets all of the criteria listed below. A project must meet all criteria to be a Major Modification. If any one of the criteria is not applicable, then the project will not trigger federal major NSR. A project is considered a Major Modification if it is:

1. At an existing Major Stationary Source, and
2. Will result in a Significant Emissions Increase, and
3. Will result in a Significant Net Emissions Increase in the source's emissions taking into account other contemporaneous increases and decreases at the facility.

²⁸ 40 CFR 51.165(a)(1)(iv)(A) and 40 CFR 52.21(b)(1)(i)

²⁹ Rule 1302 subdivision (s)

³⁰ Only the Coachella Valley is designated as nonattainment for PM₁₀. Reclassification by U.S. EPA is currently pending additional data.

³¹ 40 CFR 51.165(a)(1)(iv)(A)(3) and 40 CFR 52.21(b)(1)(i)(c)

Step 2 – Significant Emissions Increase Test

To determine if an NSR event is a Major Modification a multi-step applicability test is used to determine if the emissions from a project at an existing Major Polluting Facility will result in a Significant Emissions Increase. A project^{32,33} is defined by U.S. EPA as “a physical change in, or change in the method of operation of, an existing major stationary source” and include the emission increases for all new, modified, and debottlenecked units, as well as fugitive emissions. The emission increases of each individual emission source related to the project must be added together to determine if the permitting project, as a whole, results in a Significant Emissions Increase. The federal NSR major applicability test is complete if a permitting action does not result in a Significant Emissions Increase. If a project does not trigger federal major NSR under Step 2, then the netting calculation under Step 3 is not necessary. If there is a Significant Emissions Increase associated with a project, Step 3 is used to determine if there is also a Significant Net Emission Increase depending on whether the emission increase is for an ozone or non-ozone precursor.

Table A-2. Federal NSR Significant Emissions Increase Thresholds for SO_x, PM₁₀, and PM_{2.5}

Pollutant	Significant Emissions Increase (tons per year)
SO _x	40
PM ₁₀	15
PM _{2.5}	10

The multi-step process to determine if a project is a Major Modification subject to federal major NSR is summarized in Figure A-1 below. As described above, the Major Modification applicability test ends if a project does not trigger an individual step and only proceeds to the next step if a project triggers the prior step.³⁴

³² 40 CFR 51.165(a)(1)(xxxix) and 40 CFR 52.21(b)(52)

³³ The federal definition for a project is any change to a Major Stationary Source, whereas a Major Modification is a change to a Major Stationary Source that would result in a Significant Emissions Increase and a Significant Net Emissions Increase. The federal major NSR applicability provisions use the term project to determine if a change to a Major Stationary Source is a Major Modification that would be subject to NSR requirements.

³⁴ Federal major NSR provisions and guidance refer to the Significant Emissions Increase Test as Step 1 and the Significant Net Emissions Increase Test as Step 2 of the NSR applicability Test for Major Modifications.

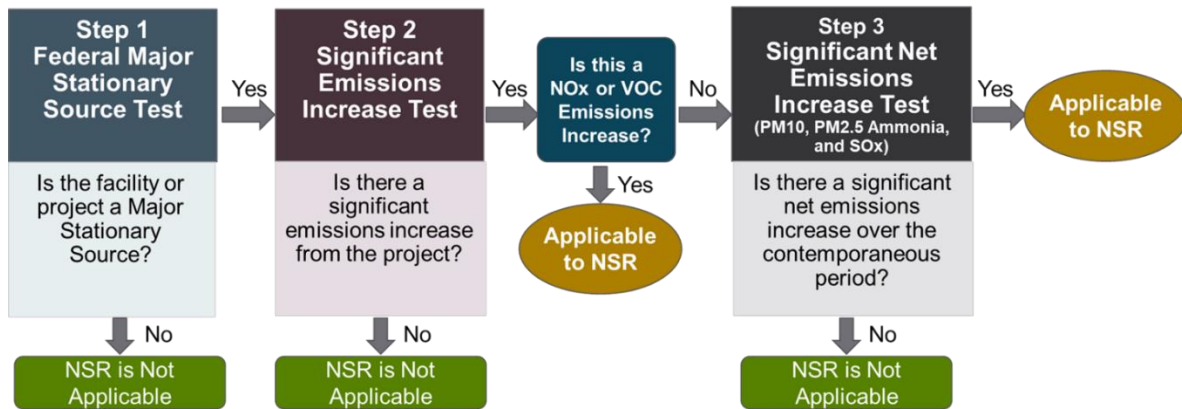


Figure A-1. Federal NSR Major Modification Applicability Test

Emissions Calculations Procedures

The calculations procedures specified in 40 CFR 51.165(a)(2) and 40 CFR 52.21(a)(2), as summarized below, are used to determine if a proposed project will result in a Major Modification. The calculations are performed for each pollutant separately. Different pollutants or precursors are not summed together to determine NSR applicability. As mentioned above, a project is a Major Modification if there is both a Significant Emissions Increase (Step 2) *and* a Significant Net Emissions Increase (Step 3). If a project does not result in a Significant Emission Increase, then it is not a Major Modification. If the project does result in a Significant Emission Increase, then the project is a Major Modification only if it also results in a Significant Net Emission Increase. Depending on the type of emission unit being proposed for a project (i.e. a new or existing emissions unit), the following procedures are used to calculate if a project will result in a Significant Emission Increase:

Actual-to-Projected-Actual Applicability Test for Projects that Only Involve Existing Emissions Units³⁵

Federal major NSR defines an existing emissions unit³⁶ as a unit that has existed for more than 2 years since the unit began operation. For an existing emissions unit, an Actual-to-Projected-Actual test is used to determine if an emission increase is significant. The Actual-to-Projected-Actual test for an existing emissions unit compares the baseline actual emissions before the proposed project (Baseline Actual Emissions, BAE) and the future actual emissions after the proposed project (Projected Actual Emissions, PAE). A Significant Emissions Increase of a regulated NSR pollutant is projected to occur if the difference between the Projected Actual Emissions and the Baseline Actual Emissions, for each existing emissions unit, equals or exceeds the Significant Emissions Increase threshold for that pollutant (Table A-2).

The Actual-to-Projected-Actual applicability test calculates an emission increase for an existing emissions unit as:

$$\text{Emissions Increase} = PAE_{\text{After the project}} - BAE_{\text{Before the project}}$$

³⁵ 40 CFR 51.165(a)(2)(ii)(C) and 40 CFR 52.21(a)(2)(iv)(c)

³⁶ 40 CFR 51.165(a)(1)(vii)(B) and 40 CFR 52.21(b)(7)(ii)

A source may elect to use the PTE for the emissions unit in lieu of projected actual emissions as provided by 40 CFR 52.21(b)(41)(ii)(d).

Under federal major NSR, for a replacement unit, the baseline emissions are the actual emissions of the existing unit being replaced rather than a zero baseline if considered a new unit, which is different than Regulation XIII where a zero baseline for new and replacement units is used. When defining an existing emission unit in 40 CFR 51.165(a)(1)(vii)(B) and 40 CFR 52.21(b)(7)(ii), federal major NSR provisions specify that a replacement unit is an existing emissions unit. Therefore, under federal major NSR, a replacement unit that meets the definition in 40 CFR 51.165(a)(xxi) and 40 CFR 52.21(b)(33) would be considered an existing emissions unit, not a new emissions unit, and the Actual-to-Projected-Actual NSR applicability test with baseline emissions before a project, which are the baseline actual emissions of the existing unit being replaced, may be used.

Projected Actual Emissions³⁷

Federal major NSR defines Projected Actual Emissions as the maximum annual rate, in tons per year, at which an existing emissions unit is projected to emit a regulated NSR pollutant in any 12-month period within 5 years following the date the unit resumes regular operation after a proposed project, or any 12-month period within 10 years of when a unit resumes regular operation after a proposed project that involves increasing the emissions unit's design capacity or PTE, if the full utilization of the unit would result in a Significant Emissions Increase or a Significant Net Emissions Increase. When determining the Project Actual Emissions, a source must consider all relevant information, including but not limited to, historical operational data and the company's own business forecast. Projected Actual Emissions shall also include fugitive emissions to the extent quantifiable, and emissions associated with startups, shutdowns, and malfunctions, but can exclude emission increases associated with the company's demand growth.

Demand Growth Exclusion³⁸

Projected Actual Emissions allows for a Demand Growth exclusion. The Demand Growth exclusion removes emission increases associated with the facility's output that would have occurred regardless of the project. The Demand Growth exclusion is allowed for emissions that an existing source could have accommodated during the consecutive 24-month period used to establish the baseline actual emissions, including any increased utilization due to product demand growth, if the emissions are unrelated to the project. A facility must justify and substantiate the Demand Growth exclusion with historical operation data demonstrating that a source achieved certain emission levels for the specified period.

Baseline Actual Emissions³⁹

For an existing emission unit, the Baseline Actual Emissions are the actual emissions emitted, in tons per year, during any consecutive 24-month period during the last 10 years if the emission unit is at a facility other than Electricity Generating Facility (EGF), or the last 5 years if the emission unit is at an EGF. The Baseline Actual Emissions must be based on the same consecutive 24-

³⁷ 40 CFR 51.165(a)(1)(xxviii) and 40 CFR 52.21(b)(41)

³⁸ 40 CFR 51.165(a)(1)(xxviii)(B)(3) and 52.21(b)(41)(ii)(c)

³⁹ 40 CFR 51.165(a)(1)(xxxv) and 40 CFR 52.21(b)(48)

month period for a pollutant, but a different 24-month period can be used for each pollutant. All emissions from a stationary source for each project, including fugitive emissions to the extent quantifiable, and emissions associated with startups, shutdowns, and malfunctions must be included in the Baseline Actual Emissions. Any exceedances that were in violation of permit or regulatory emissions limits must be excluded from the Baseline Actual Emissions. Additionally, non-EGF emission units, must adjust the Baseline Actual Emissions to exclude emissions that would exceed an emission limit under a current regulation for the chosen 24-month period, unless the emission limit is part of a Maximum Achievable Control Technology standard and credit for the reductions have not been claimed for State Implementation Plan purposes.

*Actual-to-Potential Test for Projects that Only Involve Construction of a New Emissions Unit(s)*⁴⁰

A new emissions unit is any emissions unit which is, or will be, newly constructed and which has existed for less than 2 years from the date the emission unit first operated.⁴¹ For a new emissions unit, an Actual-to-Potential test is used to determine if an emission increase is significant. A Significant Emissions Increase of a regulated NSR pollutant is projected to occur if the sum of the difference between the PTE from each new emissions unit following completion of the project and the baseline actual emissions⁴² of these units before the project equals or exceeds the significant amount for that pollutant (Table A-2).

The Actual-to-PTE applicability test calculates an emission increase for a new emission units as:

$$\mathbf{Emissions\ Increase} = \mathbf{PTE}_{After\ the\ project} - \mathbf{BAE}_{Before\ the\ project}$$

“For a new emissions unit, the baseline actual emissions for purposes of determining the emissions increase that will result from the initial construction and operation of such unit shall equal zero; and thereafter, for all other purposes, shall equal the unit's potential to emit”; therefore the Actual-to-PTE applicability test for a new emission units can be interpreted as a PTE-to-PTE test:

$$\mathbf{Emissions\ Increase} = \mathbf{PTE}_{After\ the\ project} - \mathbf{PTE}_{Before\ the\ project}$$

*Hybrid Test for Projects that Involve Multiple Types of Emissions Units*⁴³

A Significant Emissions Increase of a regulated NSR pollutant is projected to occur if the sum of the emissions increases for each emissions unit, using the Actual-to-Projected-Actual Applicability Test or the Actual-to-Potential Test, as applicable, with respect to each emissions unit, equals or exceeds the significant amount for that pollutant.

The process to calculate whether a Significant Net Emissions Increase (Step 3) will occur at an existing Major Stationary Source is specified under the definition of Net Emissions Increase contained in 40 CFR 51.165(a)(1)(vi) and 40 CFR 52.21(b)(3).

⁴⁰ 40 CFR 51.165(a)(2)(ii)(D) and 40 CFR 52.21(a)(2)(iv)(d)

⁴¹ 40 CFR 51.165(a)(1)(vii)(A) and 40 CFR 52.21(b)(7)(i)

⁴² 40 CFR 51.165(a)(1)(xxxv)(C)

⁴³ 40 CFR 51.165(a)(2)(ii)(F) and 40 CFR 52.21(a)(2)(iv)(f)

Step 3 – Significant Net Emissions Increase Test

Projects with emission increases of non-ozone precursors at an existing Major Stationary Source (Step 1) with a Significant Emissions Increase (Step 2) are required to determine if there is a Significant Net Emissions Increase (Step 3). Step 3 is only applicable for projects with PM₁₀, PM_{2.5}, ammonia, and SO_x increases. If Net Emissions are greater than or equal to the Significant Emissions Threshold, then the project would be a Major Modification subject to federal major NSR requirements.⁴⁴ Projects with emission increases of PM₁₀, PM_{2.5}, ammonia, and SO_x can net out of being a Major Modification if the Net Emission increase is less than the Significant Emissions Threshold (Table A-2).

Netting Methodology

Net Emissions is the sum of the project emissions and the sum of the emission increases and decreases at the facility during the contemporaneous period for the proposed project.

$$\text{Net Emissions} = \text{Project Emissions} + \text{Contemporaneous Project Emission}$$

Contemporaneous Project Emissions

The Contemporaneous Period includes a look back and a look forward period. The look back period begins five years before the date of construction of the (current) project commences. The look forward period begins from the date of construction of the (current) project to the date that the increase from the (current) project occurs. For a replacement unit that requires shakedown, this may include a reasonable shakedown period, but may not exceed 180 days.

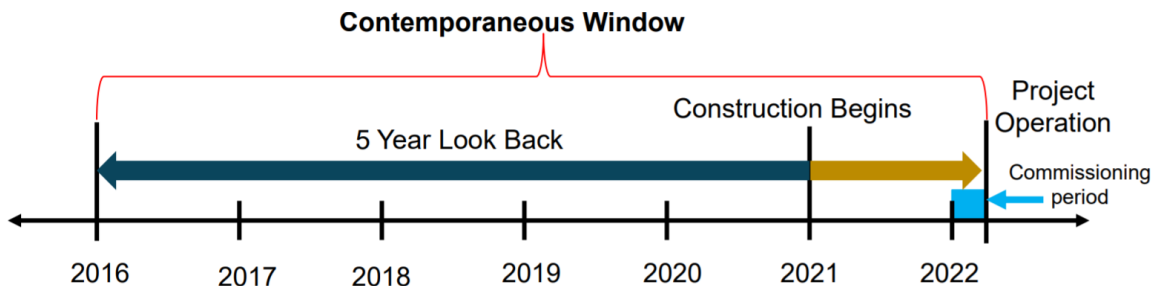


Figure A-2. Example of The Contemporaneous Period for a Proposed Project

The calculation for Contemporaneous Project Emissions is dependent on when the emission unit within a project began operation.

$$\text{Contemporaneous Project Emissions} \begin{matrix} (< 24 \text{ Months}) \\ = \end{matrix} \begin{matrix} PTE \\ (\text{post modification}) \end{matrix} - \begin{matrix} PTE \\ (\text{pre modification}) \end{matrix}$$

$$\text{Contemporaneous Project Emissions} \begin{matrix} (\geq 24 \text{ Months}) \\ = \end{matrix} \begin{matrix} PTE \\ (\text{post modification}) \end{matrix} - \begin{matrix} \text{Baseline Actual} \\ \text{Emissions} \end{matrix}$$

⁴⁴ If a project results in a Significant Emissions Increase, a source can deem the project a Major Modification without needing to perform the netting analysis to determine if there will be a Significant Net Emissions Increase.

Creditable Increases and Decreases

For increases and decreases to be creditable, they must not have been relied on in an air quality analysis in a previous NSR permit analysis, or a “Reasonable Further Progress” demonstration for nonattainment pollutant (PM_{2.5}). A creditable decrease is based on Actual Emissions-to-PTE. If actual emissions are higher than existing allowable emissions, then the creditable decrease is based on the existing allowable emissions and the revised allowable emissions. Additionally, decreases must be enforceable by the date of construction commencement. A creditable increase must involve some amount of actual increase and must involve “approximately the same quantitative significance for public health and welfare” as the project emission increase.

Additional Considerations

Fugitive Emissions and Mobile Sources

Federal NSR and Regulation XIII differ in what emission sources are included to calculate facility emissions. The two areas where Federal NSR and Regulation XIII differ are consideration of fugitive emission and definition of mobile sources. Regulation XIII requires all facilities to include fugitive emissions, whereas fugitive emissions under federal NSR are only required if the source is one of the 28 listed source categories.

When calculating a facility’s PTE to determine whether the facility is a Major Stationary Source, under federal major NSR, fugitive emissions, which are defined as those emissions that could not reasonably pass through a stack, chimney, vent, or other functionally equivalent opening,⁴⁵ are included only if the facility is listed under one of the 28 source categories. If the facility is not included in the 28 source categories, then when determining if a source is a Major Stationary Source, fugitive emissions are not included in the facility’s PTE.⁴⁶ For facilities considered a Major Stationary Source, fugitive emissions are included in the analysis to determine if a project results in a Significant Emissions Increase (Step 2) or a Significant Net Emissions Increase (Step 3).

For mobile sources, South Coast AQMD BACT guidelines require that the following sources be considered as part of the facility: in-plant vehicles, ship emissions during loading and unloading, and non-propulsion emissions within South Coast AQMD jurisdiction. Whereas the federal definition for Major Stationary Source which does not include the following when determining the PTE for a source: internal combustion engines for transportation purposes nor nonroad engines or vehicles.

Debottlenecking

When determining NSR applicability, the scope of a project must be clearly defined, and the emission increases from all affected emissions units must be accounted for. A project, which federally is defined as any physical change or change in the method of operation, can affect more than one emission unit, including bottlenecked units. Emission units with different operating capacities may constrain other emission units, resulting in a bottleneck that limits the production capacity of a process. Changes to the emission unit causing the constraint, either upstream or downstream from a bottleneck, which may result in increased emissions for a process, would be

⁴⁵ 40 CFR 51.165(a)(1)(ix) and 40 CFR 52.21(b)(20)

⁴⁶ 40 CFR 51.165(a)(1)(iv)(C)

debottlenecking. For instance, a proposed project to increase the output rating of an upstream unit may result in the bottlenecked unit being able to accept a greater input from the modified upstream unit. Another example is if a proposed project to increase the operating capacity of a downstream unit could result in the bottlenecked unit being able to provide more output to the modified downstream unit after the change. Calculating emission increases must include both increases for all new or modified emission units as well as any other increases from other existing units not being modified that experience emission increases as a result of the change. Federal NSR provisions do not define debottlenecked unit, but the intent is that a debottlenecked unit is any unchanged unit at a source that increases its utilization following a change elsewhere at the source. Even when an emission unit is not going through a physical change or change in operation itself, any emission increase as a result of a project must be included for the purpose of NSR applicability.⁴⁷

Emission increases from a debottlenecked unit as a result of a project must be included in the emissions calculation to determine NSR applicability. As discussed above, the emission increase for a new source is based on the source's PTE (Actual-to-PTE, with actual emissions having a zero emissions baseline), while the emission increase for existing units can be determined using the Actual-to-Projected Actual Applicability Test. For existing units, the Actual-to-Projected Actual Applicability Test must include the increases from the existing unit(s) being modified as well as the increases for other existing units not being modified but are being debottlenecked or increase their utilization as a result of the project.

If NSR is triggered, BACT or LAER is not required for the unchanged sources that had an increase in emissions as a result of the proposed project, BACT or LAER would only be required for the emissions units undergoing a change. The emission increases from both the changed and unchanged emissions units are used in air quality analysis.

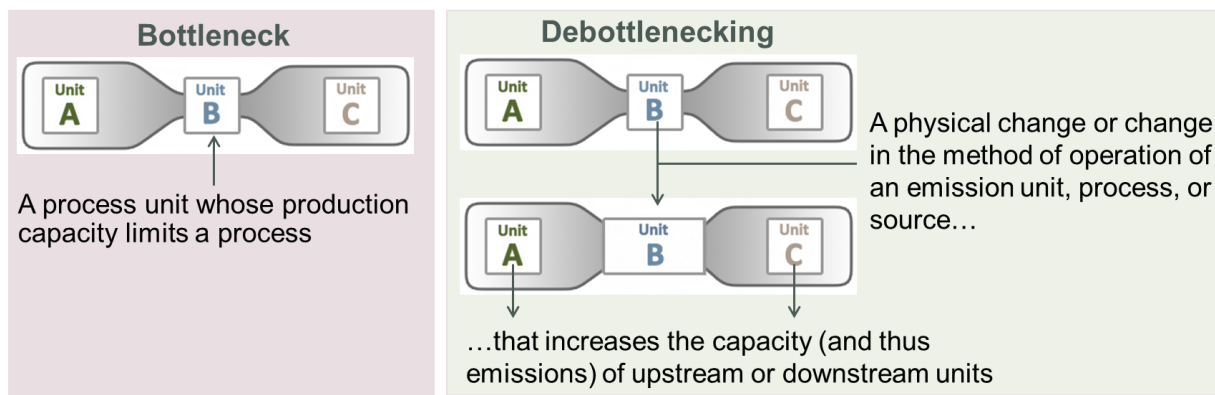


Figure A-3. Schematic of a Debottlenecked Unit

Project Aggregation

The purpose of the Significant Emissions Increase Test (Step 2) is to determine if a project will have an increase in emissions greater than or equal to the Significant Emissions Increase thresholds

⁴⁷ 71 FR 54235

for a Major Modification. As mentioned above, federal major NSR provisions define a “project” as a physical change in or change in the method of operation of an existing Major Stationary Source. Under the Significant Emissions Increase Test, when multiple emission units at an existing Major Stationary Source are changed, which would include any new, modified, or debottlenecked emission units, the emissions increase of each emission unit associated with the project must be added together when determining if the project as a whole is a Major Modification subject to federal major NSR requirements. The requirement to sum the emission increases from all substantially related emission units for a project during the Significant Emissions Increase Test is referred to as project aggregation. Project aggregation is to ensure that nominally-separate projects at a facility are treated as a single project if they are substantially related. Projects are considered substantially related, and thus aggregated, when they have a technical or economic dependence, and generally occurred within three years of each other.

Project aggregation would be evaluated on a case-by-case basis and there is federal guidance to assist facilities and agencies when evaluating if multiple projects should be aggregated as one single permitting project. U.S. EPA policy on project aggregation is to ensure that NSR requirements are not circumvented by splitting up nominally-separate projects. Project aggregation policy by U.S. EPA does not address projects that are required for regulatory compliance. The available guidance primarily addresses voluntary projects, such as facility expansions or renovations.

For purposes of PAR 1304 subparagraph (f)(1)(F), South Coast AQMD will continue to follow federal guidance on project aggregation for NSR applicability determination by aggregating substantially related activities with a technical or economic dependence, which occurred within three years of each other. Aggregation will not be necessary for control projects required solely for regulatory compliance that do not have any technical or economic dependence to each other.

Project emissions for federal major NSR applicability purposes are evaluated differently than Regulation XIII. Regulation XIII permits are issued for each individual source or unit and does not consider the emission increases from other permitted actions or non-permitted actions when evaluating if the Regulation XIII threshold of one pound per day is exceeded.

Appendix B – RULE 1315 SUBDIVISION (g)

INTRODUCTION

Regulation XIII currently has an offsetting exemption for regulatory compliance under Rule 1304 paragraph (c)(4), for sources that are installed or modified solely to comply with local, state, or federal air pollution regulations, provided there is no increase in the maximum rated capacity of the source. When sources are exempt from offsetting under Rule 1304, South Coast AQMD provides and tracks offsets from the District Offset Accounts for Federal NSR Equivalency or “Internal Bank” for nonattainment air contaminants according to Rule 1315 – Federal New Source Review Tracking System (Rule 1315). In addition to tracking for federal NSR equivalency, South Coast AQMD tracks emission increases to demonstrate compliance with the state NSR requirement of no net increase. In addition to the state and federal offsetting equivalency demonstration, Rule 1315 subdivision (g) – California Environmental Quality Act Backstop Provisions requires tracking of all increases and decreases in PTE for major and minor sources that were exempt from providing offsets under Rule 1304 or received offsets pursuant to Rule 1309.1. The purpose of Rule 1315 subdivision (g) is to ensure the cumulative net emission increases in any given year remain below the emission increases that were analyzed in the California Environmental Quality Act (CEQA) document for Rule 1315. The cumulative net emission increases for each year must remain below the threshold in Rule 1315 Table B in order for the Executive Officer to be able to continue to issue permits pursuant to Rule 1304 or Rule 1309.1. The September 3, 2021 Governing Board Status Report on Regulation XIII demonstrated that the actual and projected cumulative net emission increase of each nonattainment air contaminant at major and minor sources remain below the thresholds in Rule 1315 Table B. Based on the average increases and decreases in PTE at major and minor sources from 2011 through 2019 (summarized below) and the PM₁₀ emission increases of 0.24 tons per day from sources that could potentially use the proposed BACT exemption in Rule 1304 and be exempt from offsetting for regulatory compliance under Rule 1304 paragraph (c)(4), the PM₁₀ thresholds in Rule 1315 Table B are not expected to be exceeded.

Rule 1315 Subdivision (g) Analysis

To ensure the PM₁₀ thresholds in Rule 1315 Table B would not be exceeded, staff estimated the PM₁₀ emission increases from sources that could potentially use the PAR 1304 BACT exemption and the offsetting exemption for regulatory compliance under Rule 1304 paragraph (c)(4). To project the potential impact on the PM₁₀ thresholds in Rule 1315 Table B, the estimated PM₁₀ emission increases from sources that could potentially be exempt from BACT and offsetting were added to the average PM₁₀ PTE increase and decrease based on the historical PM₁₀ PTE increases and decreases that occurred in 2011 through 2019 at major and minor sources reported in the annual status reports on Regulation XIII.⁴⁸ Table 3 – Cumulative Net Emission Increase of the annual Status Report on Regulation XIII presents the PTE increases and decreases for each nonattainment air contaminant that occurred at a major and minor facility which was issued a permit pursuant to Rule 1304 or Rule 1309.1. Figure B-1 shows the PM₁₀ increases and decreases in PTE, the cumulative net emission increase for each year, and the corresponding PM₁₀ threshold in Rule 1315 Table B for 2011 through 2019. The methodology to calculate the PM₁₀ emission

⁴⁸ Status Report on Regulation XIII – New Source Review is presented to the Governing Board annually during the September Governing Board Meeting

increases from sources that could potentially use the proposed BACT exemption in Rule 1304 and be exempt from offsetting for regulatory compliance under Rule 1304 paragraph (c)(4) is described below.

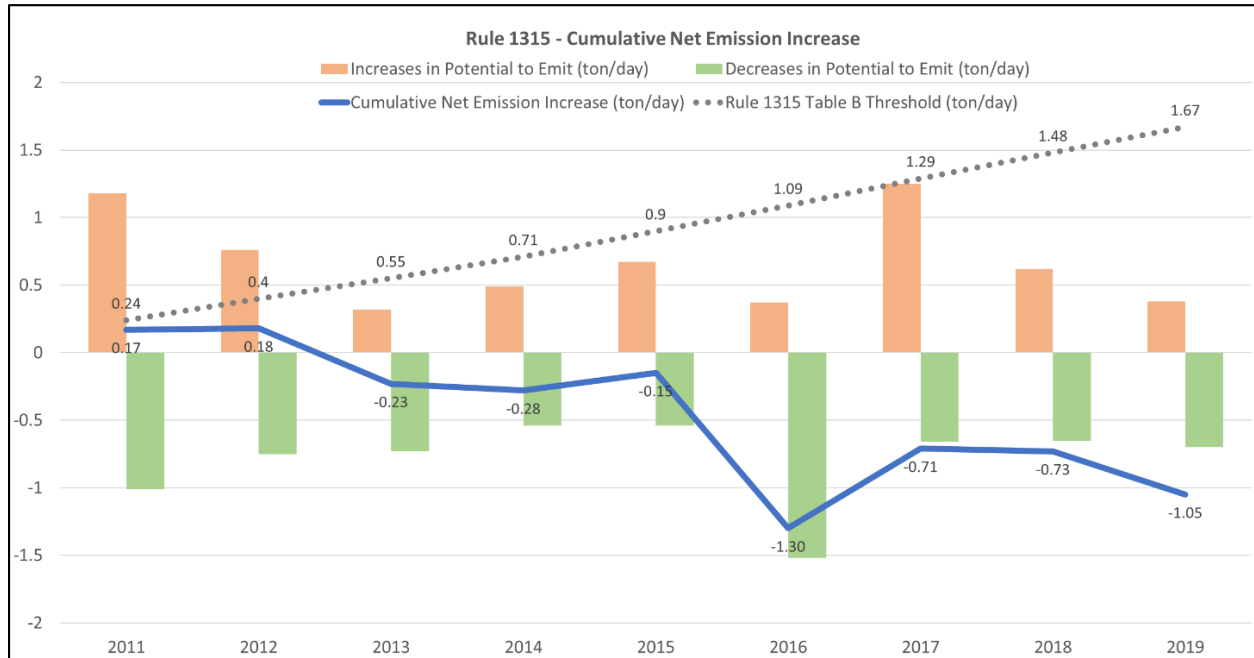


Figure B-1. Rule 1315 Cumulative Net Emission Increase for PM₁₀ from 2011 through 2019

Calculation for PM₁₀ Emission Increases

The PM₁₀ emission increases from sources that could potentially use the PAR 1304 BACT exemption and the offsetting exemption for regulatory compliance in Rule 1304 paragraph (c)(4) were calculated according to the same methodology that will be used to calculate an emission increase for federal major NSR applicability. As described below, to calculate the PM₁₀ emissions for each unit, the firing rate for each unit was used, as well as the higher heating value and total sulfur fuel content for the refinery fuel gas at each facility.

1. Calculate the fuel gas molar flow rate based on the unit firing rate and higher heating value of the fuel gas:

$$FG \left(\frac{\text{lbmol}}{\text{hr}} \right) = \frac{FR \left(\frac{\text{MMBTU}}{\text{hr}} \right) \times \frac{1\text{E}6 \text{ BTU}}{1 \text{ MMBTU}}}{HHV \left(\frac{\text{BTU}}{\text{scf}} \right) \times SV \left(\frac{\text{scf}}{\text{lbmol}} \right)}$$

where,

$$FG = \text{Fuel Gas} \left(\frac{\text{lbmol}}{\text{hr}} \right)$$

$$FR = \text{Firing Rate of the Unit} \left(\frac{\text{MMBTU}}{\text{hr}} \right)$$

$$SV = \text{specific molar volume of an ideal gas at STP} \left(\frac{\text{scf}}{\text{lbmol}} \right) = 385.3 \frac{\text{scf}}{\text{lbmol}}$$

2. Calculate the moles of SO₂ in the fuel gas assuming total sulfur content is converted to SO₂:

$$n_{SO_2} \left(\frac{\text{lbmol } SO_2}{\text{hr}} \right) = \frac{x_{H_2S}(\text{ppmv})}{1 \times 10^6} \times FG \left(\frac{\text{lbmol}}{\text{hr}} \right)$$

where,

$$n_{SO_2} = \text{molar flow rate of } SO_2 \left(\frac{\text{lbmol}}{\text{hr}} \right)$$

$$x_{H_2S} = \text{total sulfur in fuel gas (ppmv)}$$

3. Calculate the molar flow rate of SO₃ based on the SO₂ to SO₃ conversion specified by the catalyst manufacturer:

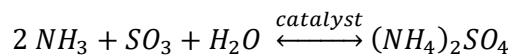
$$n_{SO_3} \left(\frac{\text{lbmol } SO_3}{\text{hr}} \right) = CF \left(\frac{1 \text{ lbmol } SO_3}{1 \text{ lbmol } SO_2} \right) \times n_{SO_2} \left(\frac{\text{lbmol } SO_2}{\text{hr}} \right)$$

where,

$$n_{SO_3} = \text{molar flow rate of } SO_3 \left(\frac{\text{lbmol } SO_3}{\text{hr}} \right)$$

$$CF = \text{conversion of } SO_2 \text{ to } SO_3$$

4. Calculate the ammonium sulfate formed assuming all SO₃ is converted to ammonium sulfate based on the following chemical reaction:



$$n_{(NH_4)_2SO_4} \left(\frac{\text{lbmol } (NH_4)_2SO_4}{\text{hr}} \right) = n_{SO_3} \left(\frac{\text{lbmol } SO_3}{\text{hr}} \right) \times \frac{1 \text{ lbmol } (NH_4)_2SO_4}{1 \text{ lbmol } SO_3}$$

where,

$$n_{(NH_4)_2SO_4} = \text{molar flow rate of ammonium sulfate}$$

5. Convert the molar flow rate to a mass flow rate using the molecular weight:

$$m_{(NH_4)_2SO_4} \left(\frac{\text{lb } (NH_4)_2SO_4}{\text{hr}} \right) = n_{(NH_4)_2SO_4} \left(\frac{\text{lbmol } (NH_4)_2SO_4}{\text{hr}} \right) \times MW_{(NH_4)_2SO_4} \left(\frac{\text{lb } (NH_4)_2SO_4}{\text{lbmol } (NH_4)_2SO_4} \right)$$

where,

$$m_{(NH_4)_2SO_4} = \text{mass flow rate of ammonium sulfate}$$

$$MW_{(NH_4)_2SO_4} = \text{Molecular weight of ammonium sulfate} = 132 \frac{\text{lb } (NH_4)_2SO_4}{\text{lbmol } (NH_4)_2SO_4}$$

PM₁₀ Calculation Example

The following is an example calculating the PM₁₀ emission formed as ammonium sulfate from an SCR installation for a unit with a firing rate of 550 MMBtu/hr, a higher heating value of 1,330 btu/scf and a total sulfur concentration of 179 ppmv for the refinery fuel gas, and a 5 percent SO₂ to SO₃ conversion for the SCR catalyst:

$$\frac{550 \times 10^6 \text{ BTU}}{\text{hr}} \times \frac{1 \text{ scf FG}}{1330 \text{ BTU}} \times \frac{1 \text{ lbmol FG}}{385.3 \text{ scf}} \times \frac{179 \text{ lbmol H}_2\text{S}}{1 \times 10^6 \text{ lbmol FG}} \times \frac{1 \text{ lbmol SO}_2}{1 \text{ lbmol H}_2\text{S}} \times \frac{0.05 \text{ lbmol SO}_3}{1 \text{ lbmol SO}_2} = \frac{0.01 \text{ lbmol SO}_3}{\text{hr}}$$

$$\frac{0.01 \text{ lbmol SO}_3}{\text{hr}} \times \frac{1 \text{ lbmol (NH}_4)_2\text{SO}_4}{1 \text{ lbmol SO}_3} \times \frac{132 \text{ lb (NH}_4)_2\text{SO}_4}{1 \text{ lbmol (NH}_4)_2\text{SO}_4} = \frac{1.27 \text{ lb (NH}_4)_2\text{SO}_4}{\text{hr}} \text{ or } \frac{0.015 \text{ tons (NH}_4)_2\text{SO}_4}{\text{day}}$$

In this example, the mass flow rate of ammonium sulfate formed corresponds to 0.015 tons per day of PM₁₀ emissions.

Using this methodology and refinery specific data, the PM₁₀ emissions for all PR 1109.1 units that were assumed to be associated with an SCR installation or modification that could potentially use the PAR 1304 BACT exemption and be exempt from offsetting under Rule 1304 paragraph (c)(4) was estimated to total 0.24 tons per day of PM₁₀.

Potential Impact on Rule 1315 Subdivision (g)

After estimating the PM₁₀ emission increases from sources that could potentially use the PAR 1304 BACT exemption and be exempt from offsetting, staff analyzed the historical PM₁₀ PTE increases and decreases at major and minor sources reported in the annual status reports on Regulation XIII. The assumptions used to analyze the potential impact on the PM₁₀ thresholds in Rule 1315 Table B are summarized in Table B-1 below. The increases and decreases in PTE for PM₁₀ reported for each year from 2011 through 2019 were used to calculate an average annual PM₁₀ increase in PTE and an average annual PM₁₀ decrease in PTE. The total PM₁₀ emission increases of 0.24 tons per day from sources that could potentially use the proposed BACT exemption in Rule 1304 and be exempt from offsetting for regulatory compliance under Rule 1304 paragraph (c)(4) was assumed would occur throughout a 3-year span (2023 through 2025), which corresponds to an annual PM₁₀ emission increase of 0.08 tons per day. The annual net emissions are estimated to be - 0.04 tons per day of PM₁₀, based on sum of the historical average increases and decreases in PTE and the additional emission increases from sources that could potentially be exempt from BACT and offsetting.

Table B-1. Assumptions Used to Estimate the Potential Impact on Rule 1315 Subdivision (g)

Description	PM ₁₀ Emissions (tons per day)
Annual PM ₁₀ Increases in PTE (based on 2011 – 2019 average)	0.67
Annual PM ₁₀ Decreases in PTE (based on 2011 – 2019 average)	-0.79
Annual PM ₁₀ emission increases from sources exempt from BACT and offsetting (based on 0.24 tons per day over a 3-year span)	0.08
Estimated Annual PM₁₀ Net Emissions	-0.04

Using the assumptions in Table B-1, staff estimated the potential impact on Rule 1315 subdivision (g) as shown in Table B-2. Table B-2 compares the projected PM₁₀ PTE increases and decreases and the cumulative net emission increase for each year to the corresponding threshold in Rule 1315 Table B. The additional yearly PM₁₀ emission increase of 0.08 tons per day from sources that could potentially use the proposed BACT exemption in Rule 1304 and be exempt from offsetting for regulatory compliance under Rule 1304 paragraph (c)(4) was assumed to occur in 2023 through 2025, which corresponds with the total 0.24 tons per day. The cumulative net emission increase for each year is equal to the sum of increases and decreases in PTE of the corresponding year plus the cumulative net emission increase of the prior year. For example, the cumulative net emission increase for 2020 is based on the estimated PM₁₀ emission increases and decreases in PTE in 2020 plus the cumulative net emission increase in 2019, as follow:

$$(0.67 \text{ tons per day}) + (-0.79 \text{ tons per day}) + (-1.05 \text{ tons per day}) = -1.17 \text{ tons per day}$$

Based on the PM₁₀ PTE increases and decreases in 2011 through 2019 and the estimated PM₁₀ emission increases from sources that could potentially use the proposed BACT exemption in Rule 1304 and be exempt from offsetting for regulatory compliance under Rule 1304 paragraph (c)(4), Table B-2 shows that the PM₁₀ thresholds in Rule 1315 Table B are not expected to be exceeded.

Table B-2. Projected PM₁₀ Emissions Compared to the Threshold in Rule 1315 Table B

Projected PM ₁₀ Emissions											
Description	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Increases in PTE (tons per day)	0.67	0.67	0.67	0.75	0.75	0.75	0.67	0.67	0.67	0.67	0.67
Decreases in PTE (tons per day)	-0.79	-0.79	-0.79	-0.79	-0.79	-0.79	-0.79	-0.79	-0.79	-0.79	-0.79
Cumulative Net Emission Increase (tons per day)	-1.17	-1.29	-1.40	-1.44	-1.48	-1.52	-1.63	-1.75	-1.87	-1.99	-2.11
Rule 1315 Table B Threshold (tons per day)	1.86	2.05	2.24	2.43	2.63	2.83	3.03	3.32	3.43	3.63	3.83

Appendix C – COMMENTS AND RESPONSES

COMMENT LETTER #1

Below is an excerpt of the comment letter received on September 17, 2021 from Torrance Refining Company LLC. Only responses to comments related to PARs 1304 and 2005 are addressed in this staff report. The full letter is addressed in the staff report for PR 1109.1.

Rule 1304 Comments**(f) Limited BACT Exemption**

(f)(A) – *“The new or modified permit unit is located at a RECLAIM or former RECLAIM facility and is being installed or modified to comply with a South Coast AQMD rule to meet a specified NOx Best Available Retrofit Control Technology (BARCT) emission limit initially established before December 31, 2023;”*

The Draft Staff report for PAR 1304 indicates that Section (f)(1)(A) limits the BACT exemption to new or modified permit units being installed or modified at RECLAIM or former RECLAIM facilities to comply with a NOx BARCT rule to transition the NOx RECLAIM program to command-and-control regulatory structure. Therefore, it appears that the intent of this exemption is that it not only applies to BARCT emission limits, but Conditional, B-Plan and B-CAP emission limits as well. For avoidance of doubt, particularly in the permitting process, The District should clarify this Section accordingly.

1-1

Response to Comment 1-1:

Qualifying projects undertaken to meet the conditional NOx Concentration Limits and Alternative BARCT NOx Limits, such as concentration NOx limits for a B-Plan or B-Cap, may use the limited BACT exemption. PAR 1304 subparagraph (f)(1)(A) limits the BACT exemption for regulatory compliance with a NOx BARCT emission limit initially established before December 31, 2023 to transition the NOx RECLAIM program to a command-and-control regulatory structure. Conditional NOx Concentration Limits and Alternative BARCT NOx Limits are considered NOx BARCT emission limits specified in PAR 1304 subparagraph (f)(1)(A).

COMMENT LETTER #2

Below is an excerpt of the comment letter received on September 17, 2021 from Marathon Petroleum Corporation on behalf of Tesoro Refining & Marketing Company LLC. Only responses to comments related to PARs 1304 and 2005 are addressed in this staff report. The full letter is addressed in the staff report for PR 1109.1.

19. PR 1304 should further clarify in the rule language that BACT exemption is allowed for equipment replacements across categories of equipment.

MPC appreciates SCAQMD’s consideration for including a limited exemption from BACT requirements for PM₁₀ and SO_x emissions from projects that are implemented to comply with the PR 1109.1 requirements. This is important for allowing projects that will be completed for PR 1109.1 compliance to be permitted efficiently and implemented in a cost-effective manner. While the language in PR 1304(f)(1)(B) appears to allow for the exemption to apply to equipment to be replaced with other equipment across different source categories, there are some references in the associated PR 1304 Draft Staff Report indicating that equipment can only be replaced within the same source category (e.g., boilers replacing boilers).¹⁶ For projects that involve replacement of equipment across source categories (e.g., boilers replacing co-generation units) that is functionally similar and does not increase the cumulative total maximum rated capacity, the rule language and staff report should be updated to reflect that the limited BACT exemption in PR 1304(f)(1) can be used. MPC has provided suggested rule language changes in Attachment 1 of this letter.

2-1

20. PR 1304 (f)(1)(B) should allow for a longer period for replaced equipment to be operated at the same time consistent with federal requirements

Subparagraph (f)(1)(B) of PR 1304 currently states that “*For the new and/or modified permit unit(s) and the permit unit(s) being replaced, a maximum of 90 days is allowed as a startup period for simultaneous operation.*” The length of time allowed for simultaneous operation of replacement units should be adjusted to align with the requirements of 40 CFR § 51.165(a)(1)(vi)(F) which allows a 180-day transition period for replacement units. This is a more appropriate time period when units are being replaced. PR 1304(f)(1)(B) should be adjusted to align with 40 CFR § 51.165(a)(1)(vi)(F).

2-2

Response to Comment 2-1:

The PAR 1304 BACT exemption can be used for situations where a unit will be replaced with a new unit from a different source category. If the new unit is installed to meet the NO_x BARCT limits and serves the same purpose, then the BACT exemption will not be restricted to require that the new unit be of the same category. Chapter 2 of this staff report further clarifies that if a unit is replaced with a unit from a different source category, the unit would be considered a new emission unit, rather than a replacement, under federal NSR. As a new emissions unit, federal major NSR applicability would be determined using a zero emissions baseline and the Actual-to-Potential test. If the unit treated as a new unit qualifies as a major modification, then it would not be able to use the BACT exemption in PAR 1304.

Response to Comment 2-2:

The startup period allowed for a replacement under 40 CFR 51.165(a)(1)(vi)(F) is 180 days, provided it meets the definition of a replacement unit in 40 CFR 51.165(a)(1)(xxi). However, PAR 1304 subparagraph (f)(1)(B) limits simultaneous operation of new or modified permit unit(s) with the equipment being replaced to a maximum of 90 days to be consistent with the startup period allowed in division (d) of Rule 1313 – Permit to Operate.